THIRD SERIES VOL 58 NUMBER 5 MARCH 1951

THE JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

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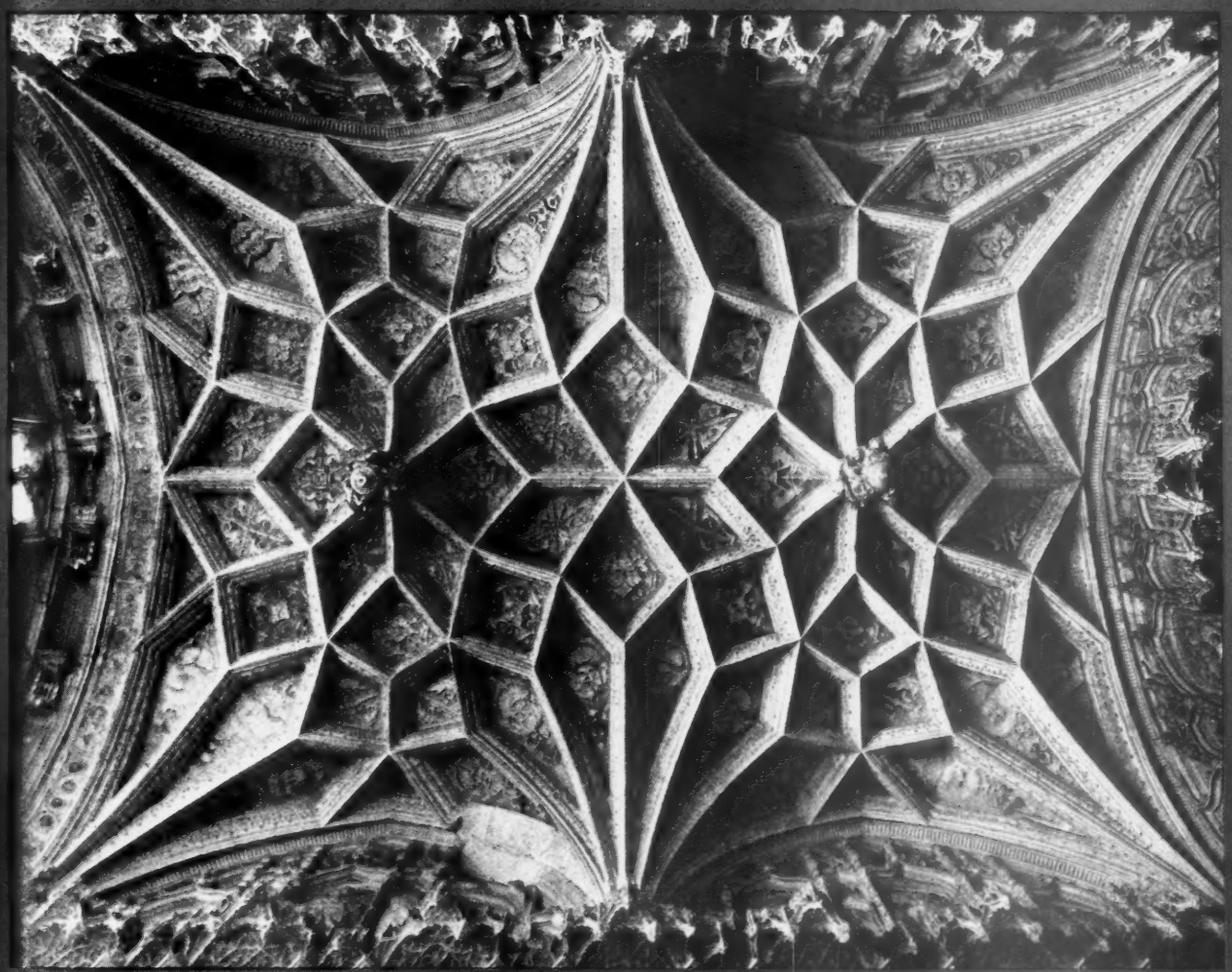

The vault of Bishop West's chantry chapel, Ely Cathedral. From a photograph by Herbert Felton, F.R.P.S.

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THE JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

THIRD SERIES VOL 58 NUMBER 5 : MARCH 1951 : 66 PORTLAND PLACE LONDON W1 : TWO SHILLINGS & SIXPENCE

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Forthcoming Institute Functions

On Tuesday 3 April the President on behalf of the King will present the Royal Gold Medal for 1951 to Mr. E. Vincent Harris, O.B.E., R.A. [*F*]. 'Gold Medal night' is always an important Institute occasion and generally provides good speeches.

On Tuesday 10 April Mr. G. Grenfell Baines, A.M.T.P.I. [*A*] will give an Architectural Science Board lecture entitled *Some Technical Problems Arising in the Building of a New Town.* We hear rumours that the architects of the new towns spend most of their time solving technical problems and relatively little on problems of æsthetics, so that Mr. Grenfell Baines as consultant to two new towns—Peterlee and Aycliffe—should have plenty of experience on which to draw. The chair will be taken by Sir Thomas Bennett [*F*], chairman of Crawley New Town Corporation.

On Friday 13 April the Discussion Meeting on *Housing Needs of the Old* will be held, the chair being taken by Mr. H. S. Goodhart-Rendel [*F*]. On Tuesday 1 May the R.I.B.A. Annual General Meeting will be held. On Friday 18 May the President and Mrs. Henderson will receive members and guests at the Annual Reception. Two special attractions have been arranged. There will be an exhibition in the Library entitled *Escape from Architecture*, and Miss Michal Hambourg will give two short concerts of piano music.

Revision of the R.I.B.A. Bye-laws

The revisions of the Bye-laws proposed by the Council were approved at the Special General Meeting held on 6 March. A report of the proceedings will be found on pp. 197-9. A second Special General Meeting to confirm the resolution will be held on 3 April, following the presentation of the Royal Gold Medal.

Sculpture in the Open Air

Her Royal Highness the Duchess of Kent will open the Second International Exhibition of Sculpture in Battersea Park on 7 May. The London County Council is thus repeating its highly successful effort of three years ago when 150,000 people visited Battersea Park to view the first exhibition. The exhibition attracted a great deal of attention at home and abroad, and has stimulated similar exhibitions in other countries.

There will be 44 works on view, of which about half are British. Nine are coming from France, and the rest from Austria, Belgium, Canada, Denmark, Germany, Holland, Italy, Switzerland and the United States. The exhibition will be open daily from 10 a.m. to dusk, including Sundays. Admission will be 1*s.*, season tickets 5*s.* Refreshments will be available in a marquee.

R.I.B.A. Festival of Britain Arrangements

There are two major items in the programme of arrangements being made by the Royal Institute in connection with the Festival of Britain. The first is an exhibition 'One Hundred Years of British Architecture' which is being held at the request of the Festival authorities. It will be opened on 11 July by the Rt. Hon. The Earl of Bessborough [*Hon. F*] and will remain open until 8 September. A feature of the exhibition will be the showing of architects' original drawings, the intention being to illustrate buildings as their designers conceived them. The exhibition will cover as equally as is possible the 10 decades of the century including the one that has just ended.

The second item is the establishment of an Information Bureau at the Royal Institute to handle enquiries and to assist Dominion and foreign architects. In normal years the Royal Institute receives a large number of such visitors. Those from the Dominions, of course, are 'at home' and thus have special attention. But foreign architects are by no means neglected and all are received, entertained and given advice and help regarding places and buildings they wish to visit. This year the numbers are likely to be so great that the establishment of the Bureau for this work alone has been considered necessary. The organization of both the Exhibition and information bureau are in the charge of the Public Relations Committee and under the direction of Mr. R. W. M. Orme, B.A., Assistant Secretary.

Housing Needs of the Old. Exhibition and Discussion Meeting

The meeting to be held at the R.I.B.A. on Friday 13 April, at which the problem of housing the aged will be discussed, is already assured of a good attendance. Rather more applications for tickets have been received, however, from statutory and voluntary housing associations than from architects. The organizers intend the meeting to be a general discussion on the main elements of the problem, between the representatives of housing authorities and architects. At the moment it looks as if the former, representing the clients as it were, will rather outweigh the technical side—the architects. Members who have special experience in this subject are therefore asked to make a point of attending, not forgetting that they must apply for tickets beforehand, because accommodation is limited. They will be assured of an interesting and useful meeting because the chief speakers are all experts and there will be ample time for discussion. Contributions to the discussion by architects will be specially welcomed. The meeting begins at 2.30 p.m. and will be followed by tea. A large amount of material has been collected for the exhibition which will be on view at the same time.

Festival of Britain Design Awards

The scheme of awards for good design in building and landscaping has been extended to permit entries to be made up to 31 March. It will be remembered that the object of this scheme is to stimulate interest in landscape and architectural design and that any buildings or group of buildings, or any improvement to rural or urban landscaping (excluding very large 'works' such as new towns, or very small ones such as single homes) are eligible. More than 150 entries have been received, but it has been suggested that schemes completed during the winter ought to be included, and that this month might provide better conditions for photography than have recent months.

To be eligible, the 'work' must have been begun since 15 August 1945 and be sufficiently complete to allow judgment to be made by 31 March 1951. The Architecture Council also announce that nominations already made can be withdrawn and re-submitted with better photographs if desired. Nomination forms can be obtained from the Liaison Branch, Festival of Britain, Savoy Court, W.C.2.

The Building Research Congress 1951

Over 1,000 persons have applied for membership of the Building Research Congress which is to be held in London from 11 to 20 September. Architects who are considering attending the Congress are advised to apply as soon as possible, because the membership will probably have to be limited to 1,500. This limitation results from the difficulty of obtaining halls large enough to accommodate the members likely to attend each Division of the Congress; one of these will meet at the R.I.B.A. Application for membership should be made to the Organizing Secretary, Building Research Congress, The Building Research Station, Garston, Watford, Herts.

Division III of the Congress is the one most likely to interest architects. It covers acoustics, heating and ventilation, lighting and symposia on hospitals, factories and schools. The speakers in the symposia are: *Hospitals*, Mr. R. Llewellyn Davies, B.A. [*A*], Mr. M. E. Molander (Sweden) and Mr. Marshall Shaffer (U.S.A.); *Factories*, Mr. F. A. Fairbrother, Chief Architect to the staff of Albert Kahn Associated, Architects and Engineers (U.S.A.), Mr. E. D. Mills [*F*] and Mr. G. P. Barnett, Chief Factory Inspector; *Schools*, Mr. S. A. W. Johnson-Marshall, B.Arch. (L'pool) [*A*], Chief Architect, Ministry of Education, Mr. Lawrence B. Perkins (U.S.A.) and Mr. Alister G. MacDonald [*F*].

Division I covers mechanization and prefabrication, design in concrete, steel, timber and light alloys and soil studies. Division II is concerned with building materials, especially weathering and durability of clay products, cement and concrete, building stones and lime, paints and plaster and timber.

Victoria and Albert Museum

The Museum has now completed another stage towards post-war rehabilitation by the re-arrangement of 17 rooms forming part of the Primary Collections; they fill the gap between the Gothic galleries and those of the 17th century Continental, Tudor and Stuart art, which are already complete.

The rooms were opened to the public on 7 March and contain examples of late Gothic and Renaissance art in all media, set out in a spacious and convenient arrangement that allows the exhibits to be studied in ease, to which the well-arranged 'egg-crate' strip lighting contributes in no small degree. This arrangement is quite different from the old one, classification under periods having been substituted for one under materials. The grouping and arrangement of the exhibits, also, is excellent. The numbers of exhibits on view are less than before the war so that the casual visitor sees typical good examples only. Scholars can, however, obtain access to the exhibits that have not been replaced. This excellent procedure might well be imitated by other museums.

At the opening of the Architecture of Transport Exhibition. L. to R.: Lord Hurcomb, who opened the exhibition, the President, R.I.B.A., Mr. A. Graham Henderson, Mr. Howard Robertson, [*F*], who moved the vote of thanks to Lord Hurcomb, Mr. J. S. Wills, President of the Institute of Transport, who seconded; and, Mr. J. H. Brebner, Chief Public Relations and Publicity Officer, British Transport Commission. A report of the opening ceremony is on pages 176-9.

New South African Architectural Periodical

We welcome from the Dominion of South Africa the new monthly periodical ARCHITECT AND BUILDER. Produced on a quality of paper and with a free use of space that austerity-ridden editors in Britain will envy, the first number appears to have a good future before it. The editor and proprietor is Mr. L. S. Wale, a past student of the University of Capetown School of Architecture. To start a new paper in these days of uncertainty and high production costs requires considerable courage. We wish him every success and that his new venture will be of service to architects in South Africa.

R.I.B.A. Prizes and Studentships Pamphlet, 1951-52

The R.I.B.A. Prizes and Studentships Pamphlet for 1951-52 is now available. The pamphlet gives full information on the various R.I.B.A. Prizes and Studentships, together with, where applicable, the detailed programmes for the competitions. Brief particulars of prizes, scholarships, etc. offered by bodies other than the Institute are also included.

The pamphlet can be obtained from the R.I.B.A., price 2*s.* (postage 3*d.*).

Testimonies of Study

An unsigned postcard was received recently by the Secretary of the Board of Architectural Education on which was written nothing more than 'Psalm 119: v. 111'.

The text was found to be: 'Thy testimonies have I taken as an heritage for ever for they are the rejoicing of my heart.'

We presume that the sender had had his testimonies of study accepted by the examiners.

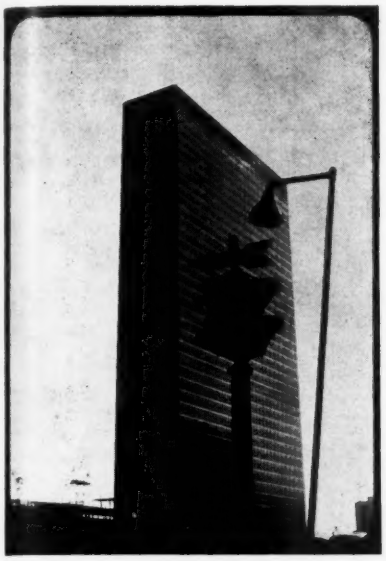
R.I.B.A. Diary

TUESDAY 3 APRIL 6 P.M. Seventh General Meeting: Presentation of the Royal Gold Medal. Followed by Special General Meeting. (See Notes and Notices.)

TUESDAY 10 APRIL 6 P.M. A.S.B. Lecture. *Some Technical Problems arising in the Building of a New Town.* G. Grenfell Baines, A.M.T.P.I. [*A*].

TUESDAY 1 MAY 6 P.M. Annual General Meeting.

FRIDAY 18 MAY 8.15 P.M. TO MIDNIGHT. The R.I.B.A. Annual Reception.



The United Nations Building in New York

By Wallace K. Harrison [Hon. Corres. Member],

Director of Planning, United Nations Headquarters, New York

Read before the Royal Institute of British Architects
20 February 1951. The President in the Chair

YOUR GREAT publication, THE ARCHITECTURAL REVIEW, sometimes considers Americans as a little ahead of the Australian bushmen and somewhat behind the Romans as far as cultural achievement is concerned. Therefore, you show great tolerance in permitting me to appear before you tonight. May I add that we realize that this criticism is criticism from our own family and take it in good part, knowing that in many ways you are right. However, may I in defence of our side mention that we believe we have tried and in some cases have been of some value to mankind. We have done our best to help this crippled world.

For my part I am proud to stand before an English professional group which has been represented by such men as Soane, Wren, and Paxton. When you remember the inventiveness and courage of Paxton you are supported in the attempt to take another step into the unknown world of trial and error.

Britain in architecture, as in the mechanical world, has always been a leader though sometimes greatest in areas which are considered as being on the periphery of architecture—her freely planned parks and open spaces, and such buildings as her great greenhouses and the Crystal Palace.

But you did not ask me to talk about you or us, but to talk about the United Nations.

André Gide has said: 'Having arrived at a certain point in history, there is nothing which does not present a problem. . . .' There is architecture today. Architecture not only *presents* but *is* the sum of the problems of the day. One of the greatest I've ever had to face, with fourteen other composer architects, was that of trying to build, quickly and well, a headquarters for the United Nations.

In April 1947 the Secretary-General of the United Nations, Trygve Lie, a truly great man, assembled in New York a group of architects and engineers (speaking at least 10 languages and from 14 different countries) to design, as a group, a home for the United Nations. We disagreed, we fought, but we worked hard and each day we returned ready to start anew. We knew we had to succeed. I should like to tell you something about these men, for the United Nations Headquarters is certainly no more, and perhaps is less, than their collected experiences. You probably know their names as well as I, but they are so much a part of the whole that I would like to pay tribute to them individually. The 14 architects appointed by the various member nations were:

John Antoniades, Greece; Nicolai Bassov, U.S.S.R.; Vladimir Bodiansky, France; Gaston Brunfaut, Belgium; Josef Havlicek, Czechoslovakia; Charles Le Corbusier, France; Ernst Cormier, Canada; Ssu-ch'eng Liang, China; Sven Markelius, Sweden; Oscar Niemeyer, Brazil; Matthew Nowicki, Poland; Howard Robertson, United Kingdom; G. A. Soilleux, Australia; Julio Vilamajo, Uruguay; Ernest Weismann, Yugoslavia.

Julio Vilamajo, Uruguay's distinguished architect, was a sick man when he came to help us. Unfortunately, he has not lived to see the completion of his effort as he died the following April.

The youngest of all, Matthew Nowicki, the brilliant Polish designer, was killed tragically in a plane crash in Egypt when returning from India.

Nicolai Bassov, Russian specialist in construction and foundations, was responsible for rebuilding plants destroyed by Germany during the siege of Stalingrad. He is an engineer of architectural breadth. He worked all one night to bring proof that a man would walk less, if the elevators were put in the centre of the building. I remember particularly how he illustrated his points by proverbs:

'The quality of the leather in my boot is unaffected by the feelings of the calf from which it came.'

'Drink and you die; don't drink and you still die; so let's drink.'

'If you have made your bed everyone wants to lie in it.'

Sven Markelius approached the U.N. from the point of view of its relationship to the city, and spent much of his time on approaches, the gardens, parking, etc. He also laid out a plan for the long range relationship of the U.N. site to the City of New York.

Oscar Niemeyer, one of the great designers of this world, held to the theory of open spaces and spaces around buildings. I believe his ideal is almost the Greek one, that each building should be complete and perfect in itself; and simple forms should all have space around them.

Liang would constantly vote against placing the Secretariat Building with its axis running north and south. He wouldn't say anything, just vote against it. Finally, hoping for unanimity, if we could get it, I asked why. He answered, very quietly: 'We have run our buildings from east to west in China for three thousand years and it's very satisfactory. I see no reason to change.'

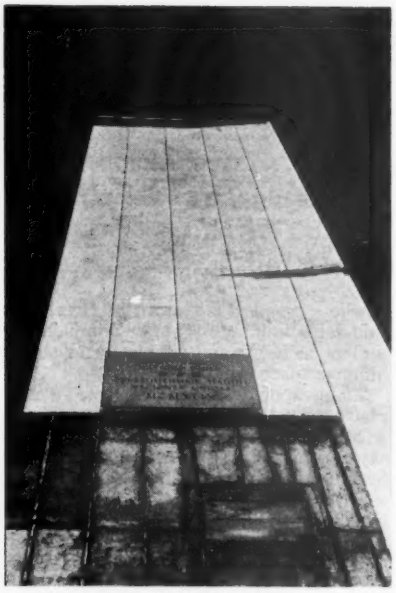
Howard Robertson, a modernist, constantly tried to get us to introduce courtyards, and when I walk across the wide open spaces in front of the Secretariat in winter, I know he was right. I may say that without the tact, courage and diplomacy of Howard Robertson, there would be no U.N. Headquarters today.

There is no greater problem in this world than to face a sheet of blank white paper. What to do next?

Some architects are able, as though improvising, to search their souls and find the proper symbolic solution for the problem at hand. This may result in such great monuments as The Invalides or St. Paul's. Or an architect may have an idea, a conviction, a philosophy—call it what you will—that the structural system must dominate the composition. This may result in an Orly hangar or an Eiffel Tower. But in each case, man becomes a little dot in the empty spaces of the composition, left to his own devices to find his place, just as he did in the days when he explored caves for a home. It is architecture by man—but not *of* man or even *for* man.

We took as our first problem this man who, in the vast growing scale of world enterprises still stays 6 ft. high with a seat not over 2 ft. 6 in. In the Secretariat building, for instance, we had 4,000 people to take care of. They had to work together for the various bodies—the Assembly, the Security Council, the Economic and Social Council, the Trustee Council, and in 20 conference rooms.

Knowing that a man will seldom be over 6 ft. tall, we had to allow at least 2 ft. of space over his head for safety and comfort. As you know, the thickness of a floor in a modern office building, with air-conditioning, lighting, plumbing, and wind-bracing, is another 2 ft. 6 in. to 3 ft. 6 in. in height. So we have a floor height of between 10 ft. 6 in. and 12 ft. 6 in. from floor to floor. This floor height of 12 ft. comes from the height of a man working in an office.



One of the stone-faced end walls

We found we needed an area of 96 sq. ft. for desk, chair, files, etc. Studying the depth to which good light will penetrate a room from a window at one side of the room, we find that when the head of the window is 8 ft. from the floor daylight will efficiently enter about one and one-half times the height of the head of the window, or about 12 ft. into the office. That gives us an office 12 ft. deep. When we divide this into 96 sq. ft. of floor area, we have a minimum office 8 ft. by 12 ft.

Generally we find that the ideal office building plan is an outside office about 8 ft. by 12 ft. and inside that another 8 ft. by 12 ft. office for a secretary, reception space, or files. This gives a depth of 20 ft. to 24 ft. To this we must add a corridor of 6 ft. making in all about 30 ft. of outside space.

In a building with a population the size of the Secretariat, elevators have to be about 6 ft. by 10 ft., or 6 ft. by 8 ft. to let people in and out efficiently. And elevators have to work in groups of six or eight to keep the interval of waiting at any floor at a minimum. With elevators in banks of six or eight, and with a corridor between them, we find that the distance from centre of bank to centre of bank of elevators is from 24 ft. to 27 ft. This determines the location of our wind-bracing in office skyscrapers. Stairs, toilets, ducts, are also standards related in size to the man. Also, in plan we have found that if a man has to walk more than 125 ft. from his office door to an elevator, he is wasting time and energy. Finally, we have found by experience that with conditions similar to those found on Manhattan Island, a building 25 to 45 stories high is the most efficient and economical.

And, when you have solved all requirements and added a study of the problem of the economy of the perimeter, the architect has a rather complete plan—almost fixed—and largely determined by the size and energies of this little animal, the human being.

There is another major factor that enters into the designing of a skyscraper. Every skyscraper must be built in units not more than 15 stories high, built one on top of the other. Thus at approximately every fifteenth floor you have a 'basement', for water tanks, elevator and air-conditioning machinery, and fire protection. At this point we combine our facts of plan and section on paper and it is only then that adjustments are made for exterior delight.

In the Secretariat buildings of the United Nations Headquarters, we have provided well for the little man. We have: a population of 4,400; office space of 446,136 sq. ft.; meeting rooms and others of 365,176 sq. ft.; total area of 811,312 sq. ft.; area per person of 135 sq. ft.; building cube of 10,950,000 cu. ft.

Now, how do we plan the great council rooms where these men work together? We find that the same system used in planning office space can meet the needs of the conference rooms. Each room is worked out exactly as the office is worked out: one man after the other. As the engineer replied when asked, 'How can you build a railroad 3,000 miles long?' 'It's easy—I only build 1 ft. at a time.' We built one seat at a time.

I should now like to explore with you the prospects for future progress in the field of architecture. Since 1920 the technological side of architecture has been over-emphasized, probably in reaction to the Victorian and Beaux Arts period and in appreciation of the Greek standard of purity of line.

Some will say that man must also understand the supernatural, the fourth dimensional; and even the Dada. However, we don't often get jobs to build dream houses, except in Hollywood, and I will stick to the problems I have been faced with in the past.

I believe there are three essential parts of architecture: human, natural, and technological.

In the technological area we in the United States have developed many new materials, just as you have. One of our major problems has been that as buildings are built higher the wind, vacuum, rain, sleet, and snow bring up many new and more difficult problems. Every building is alive and moving. Sometimes the movement is considerable, as at the top of the Empire State Building. And there is no way with steel skeletons to stop this movement completely. If it is not caused by wind pressure, it is due to the differential between one side heated by the sun and the other exposed to a cold draught. This means that every joint, stone or brick is opening and closing all the time.

We have tried to find a solution to this problem by using metal, in one form or other, in place of heavy surface masonry. We must remember that when we take the masonry off a building it becomes more flexible and therefore we have to design more carefully for deflection.

There are important developments coming in air conditioning and insulating. The use of light has also changed considerably. We have found that we have to eliminate contrasts and raise the foot-candles to two or three times the quantities used in pre-war days. The use of silicones in some ways will open great new areas of development—and, of course, glass is just starting to be used for its various properties. In the U.N. we use a green glass which blocks the infra-red rays. When the sun is shining we have shown that the temperature is 10 degrees Fahrenheit less on the interior than with ordinary glass.

Glazing windows from a suspended scaffold

The use of two sheets of glass will be developed rapidly with the new glass seal for double windows. Glass curtains and upholstery materials, glass for insulating, glass as an acoustical sound-absorbing material are some of the new uses. In the U.N. Secretariat we used sound-absorbent material in the ceilings, and Mr. Lie objected because he said it made the office too quiet.

We are using more and more mechanical methods of communication, mechanical card indexing, mechanical microfilming and filing. Some day we will dial for a book or document, and it will be on our desk in a few seconds by pneumatic tube. Certainly we will soon move from telephone conferences between cities to television conferences.

At the end of World War II my firm was employed by the magazine *Time and Life* to study the possibilities of a new skyscraper home for them on Manhattan. They would take nothing for granted and, with their guidance and help, we employed the best men in the country, even though they had never been in building construction. We had bridge engineers study the problem of columns in buildings. We had specialists on lighting, specialists on hearing, heating and air-conditioning engineers. And, finally,

General view of the United Nations site and Secretariat Building from Welfare Island in the East River, New York

we visited every industrial plant and research centre that had been studying new materials during the war.

But out of this we produced a scheme for a building and a standard for office space which, though based entirely on efficiency, might be a starting point for further study of office space. Until we started this job we had not realized what resources were available.

Let me get on to the second element in architecture—the natural. Human beings have been conditioned to nature and natural materials since the beginning of time. We can not forget this. Otherwise our architecture will produce technological schizophrenics.

Years ago Mrs. Harrison and I were having lunch with Carl Jung in Zurich and talking about architecture. He told us that 'modern architects are all close to schizophrenia because they are getting too far from the animal and natural. You open the outside world into man's protective home, you even bring trees into his house—this can only end in insanity.'

He then told the story of an African chief who started to build his house, using certain trees that had protective gods associated with them. He rejected trees that were supposed to have hostile demons associated with them. For his home only the good and protective trees were used. It was the same with the stones and the fabrics—all were chosen for their beneficial qualities.

We all know that we would prefer to feel the wood wall of a Japanese house than the glass and steel walls we now are using.

I am not sure what happens to a man when his home, Number 1919—19th Street is identical with the one at 1818—18th Street. Recently a man was arrested in one of our housing developments because he had taken a drink too many and tried to climb into somebody else's bed two blocks away.

The boring similarity of some of our mass housing projects, both public and private and perhaps of some of yours too, will drive a man to insanity or to the pubs here and in New York to the local bar.

In Liberia the Firestones tried to build nice brick houses for their employees, but the employees were so unhappy with brick houses that the company had to go back to the native form.

Your problem in England is completely different from ours or that of France or Switzerland. Why do we all try to put on the same corset of architecture? As the world becomes smaller it is essential that our cultures retain their personality. '*Digne de soi-meme.*'

One of the sciences developed in recent years by Professor Adelbert Ames at Dartmouth and Princeton is that of visual perception. By experiment, Dr. Ames has proven that what each individual actually sees is different from that which another sees, because man's vision is the result of his past experience and even of his inheritance. This development is bound to affect the art of architecture as well as the study of relationships between human beings.

At New Haven Professor C. E. A. Winslow has been studying man's reactions to *space*, *light*, and *climate*. I'm sure that he too is opening new vistas for the architect.

I believe in the inevitability of gradualness, but I like the shock of revolution. I'd like to see us really revolt against the idea that the machine will use man instead of man using the machine.

Where does all this lead us? Well, stated simply—the study of architecture is the study of man.

This brings me to the third element in architecture, the human. For example, I have found by personal experience that I don't like windows as large at 40 stories as at the second story. I have found that we have to develop new forms to give man greater assurance of security.

The Egyptians knew how to use architecture to give direct physical reactions to humans. For instance, a man walked through a brilliantly lit courtyard where the irises of his eyes were narrowed to a pin point. Then he entered a dim colonnade. From there he went into another dazzlingly bright courtyard. Finally he entered the Holy of Holies where the blackness blinded him for a minute. Out of the blackness the great god seemed to advance—lit by a 6-in. hole through 6 ft. of masonry. They used architecture as a means of enclosing light.

When we think of man we think of space around man, and the future of architecture depends on the way we manipulate that space.

We can not just draw plans.
We can not just draw elevations.
We can not just know techniques.
We can not just know mechanics.
We must know man.

We must know more about man than any of our predecessors—not less.

We must approach architecture simply, without fear, without pride—with faith in the human being.

When we reach this point, we have struggled through the thick woods and brambles up the hill to find ourselves on a precipice looking out over the vast expanse of the unknown. It is at this point that the great ones will be able to reach into that stratosphere of understanding too high for most men and bring down to this earth a little of that common inspiration which God grants his artists. This is the way that architecture is achieved.

Everything is ahead of us: The best play has not been written. The best song has not been sung. The best building has not been built.

Our job in building the U.N. was a difficult one—possibly too difficult, but we have tried with all we had to build for man his Workshop for Peace.

DISCUSSION

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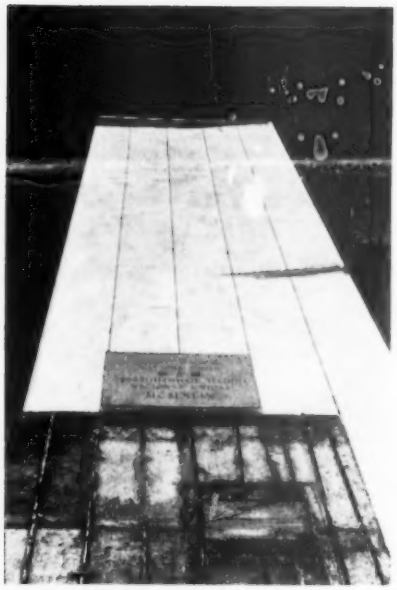

One of the stone-faced end walls

We found we needed an area of 96 sq. ft. for desk, chair, files, etc. Studying the depth to which good light will penetrate a room from a window at one side of the room, we find that when the head of the window is 8 ft. from the floor daylight will efficiently enter about one and one-half times the height of the head of the window, or about 12 ft. into the office. That gives us an office 12 ft. deep. When we divide this into 96 sq. ft. of floor area, we have a minimum office 8 ft. by 12 ft.

Generally we find that the ideal office building plan is an outside office about 8 ft. by 12 ft. and inside that another 8 ft. by 12 ft. office for a secretary, reception space, or files. This gives a depth of 20 ft. to 24 ft. To this we must add a corridor of 6 ft. making in all about 30 ft. of outside space.

In a building with a population the size of the Secretariat, elevators have to be about 6 ft. by 10 ft., or 6 ft. by 8 ft. to let people in and out efficiently. And elevators have to work in groups of six or eight to keep the interval of waiting at any floor at a minimum. With elevators in banks of six or eight, and with a corridor between them, we find that the distance from centre of bank to centre of bank of elevators is from 24 ft. to 27 ft. This determines the location of our wind-bracing in office skyscrapers. Stairs, toilets, ducts, are also standards related in size to the man. Also, in plan we have found that if a man has to walk more than 125 ft. from his office door to an elevator, he is wasting time and energy. Finally, we have found by experience that with conditions similar to those found on Manhattan Island, a building 25 to 45 stories high is the most efficient and economical.

And, when you have solved all requirements and added a study of the problem of the economy of the perimeter, the architect has a rather complete plan—almost fixed—and largely determined by the size and energies of this little animal, the human being.

There is another major factor that enters into the designing of a skyscraper. Every skyscraper must be built in units not more than 15 stories high, built one on top of the other. Thus at approximately every fifteenth floor you have a 'basement', for water tanks, elevator and air-conditioning machinery, and fire protection. At this point we combine our facts of plan and section on paper and it is only then that adjustments are made for exterior delight.

In the Secretariat buildings of the United Nations Headquarters, we have provided well for the little man. We have: a population of 4,400; office space of 446,136 sq. ft.; meeting rooms and others of 365,176 sq. ft.; total area of 811,312 sq. ft.; area per person of 135 sq. ft.; building cube of 10,950,000 cu. ft.

Now, how do we plan the great council rooms where these men work together? We find that the same system used in planning office space can meet the needs of the conference rooms. Each room is worked out exactly as the office is worked out: one man after the other. As the engineer replied when asked, 'How can you build a railroad 3,000 miles long?' 'It's easy—I only build 1 ft. at a time.' We built one seat at a time.

I should now like to explore with you the prospects for future progress in the field of architecture. Since 1920 the technological side of architecture has been over-emphasized, probably in reaction to the Victorian and Beaux Arts period and in appreciation of the Greek standard of purity of line.

Some will say that man must also understand the supernatural, the fourth dimensional; and even the Dada. However, we don't often get jobs to build dream houses, except in Hollywood, and I will stick to the problems I have been faced with in the past.

I believe there are three essential parts of architecture: human, natural, and technological.

In the technological area we in the United States have developed many new materials, just as you have. One of our major problems has been that as buildings are built higher the wind, vacuum, rain, sleet, and snow bring up many new and more difficult problems. Every building is alive and moving. Sometimes the movement is considerable, as at the top of the Empire State Building. And there is no way with steel skeletons to stop this movement completely. If it is not caused by wind pressure, it is due to the differential between one side heated by the sun and the other exposed to a cold draught. This means that every joint, stone or brick is opening and closing all the time.

We have tried to find a solution to this problem by using metal, in one form or other, in place of heavy surface masonry. We must remember that when we take the masonry off a building it becomes more flexible and therefore we have to design more carefully for deflection.

There are important developments coming in air conditioning and insulating. The use of light has also changed considerably. We have found that we have to eliminate contrasts and raise the foot-candles to two or three times the quantities used in pre-war days. The use of silicones in some ways will open great new areas of development—and, of course, glass is just starting to be used for its various properties. In the U.N. we use a green glass which blocks the infra-red rays. When the sun is shining we have shown that the temperature is 10 degrees Fahrenheit less on the interior than with ordinary glass.

Glazing windows from a suspended scaffold

The use of two sheets of glass will be developed rapidly with the new glass seal for double windows. Glass curtains and upholstery materials, glass for insulating, glass as an acoustical sound-absorbing material are some of the new uses. In the U.N. Secretariat we used sound-absorbent material in the ceilings, and Mr. Lie objected because he said it made the office too quiet.

We are using more and more mechanical methods of communication, mechanical card indexing, mechanical microfilming and filing. Some day we will dial for a book or document, and it will be on our desk in a few seconds by pneumatic tube. Certainly we will soon move from telephone conferences between cities to television conferences.

At the end of World War II my firm was employed by the magazine *Time and Life* to study the possibilities of a new skyscraper home for them on Manhattan. They would take nothing for granted and, with their guidance and help, we employed the best men in the country, even though they had never been in building construction. We had bridge engineers study the problem of columns in buildings. We had specialists on lighting, specialists on hearing, heating and air-conditioning engineers. And, finally,

General view of the United Nations site and Secretariat Building from Welfare Island in the East River, New York

we visited every industrial plant and research centre that had been studying new materials during the war.

But out of this we produced a scheme for a building and a standard for office space which, though based entirely on efficiency, might be a starting point for further study of office space. Until we started this job we had not realized what resources were available.

Let me get on to the second element in architecture—the natural. Human beings have been conditioned to nature and natural materials since the beginning of time. We can not forget this. Otherwise our architecture will produce technological schizophrenics.

Years ago Mrs. Harrison and I were having lunch with Carl Jung in Zurich and talking about architecture. He told us that 'modern architects are all close to schizophrenia because they are getting too far from the animal and natural. You open the outside world into man's protective home, you even bring trees into his house—this can only end in insanity.'

He then told the story of an African chief who started to build his house, using certain trees that had protective gods associated with them. He rejected trees that were supposed to have hostile demons associated with them. For his home only the good and protective trees were used. It was the same with the stones and the fabrics—all were chosen for their beneficial qualities.

We all know that we would prefer to feel the wood wall of a Japanese house than the glass and steel walls we now are using.

I am not sure what happens to a man when his home, Number 1919—19th Street is identical with the one at 1818—18th Street. Recently a man was arrested in one of our housing developments because he had taken a drink too many and tried to climb into somebody else's bed two blocks away.

The boring similarity of some of our mass housing projects, both public and private and perhaps of some of yours too, will drive a man to insanity or to the pubs here and in New York to the local bar.

In Liberia the Firestones tried to build nice brick houses for their employees, but the employees were so unhappy with brick houses that the company had to go back to the native form.

Your problem in England is completely different from ours or that of France or Switzerland. Why do we all try to put on the same corset of architecture? As the world becomes smaller it is essential that our cultures retain their personality. '*Digne de soi-meme.*'

One of the sciences developed in recent years by Professor Adelbert Ames at Dartmouth and Princeton is that of visual perception. By experiment, Dr. Ames has proven that what each individual actually sees is different from that which another sees, because man's vision is the result of his past experience and even of his inheritance. This development is bound to affect the art of architecture as well as the study of relationships between human beings.

At New Haven Professor C. E. A. Winslow has been studying man's reactions to *space*, *light*, and *climate*. I'm sure that he too is opening new vistas for the architect.

I believe in the inevitability of gradualness, but I like the shock of revolution. I'd like to see us really revolt against the idea that the machine will use man instead of man using the machine.

Where does all this lead us? Well, stated simply—the study of architecture is the study of man.

This brings me to the third element in architecture, the human. For example, I have found by personal experience that I don't like windows as large at 40 stories as at the second story. I have found that we have to develop new forms to give man greater assurance of security.

The Egyptians knew how to use architecture to give direct physical reactions to humans. For instance, a man walked through a brilliantly lit courtyard where the irises of his eyes were narrowed to a pin point. Then he entered a dim colonnade. From there he went into another dazzlingly bright courtyard. Finally he entered the Holy of Holies where the blackness blinded him for a minute. Out of the blackness the great god seemed to advance—lit by a 6-in. hole through 6 ft. of masonry. They used architecture as a means of enclosing light.

When we think of man we think of space around man, and the future of architecture depends on the way we manipulate that space.

We can not just draw plans.
We can not just draw elevations.
We can not just know techniques.
We can not just know mechanics.
We must know man.

We must know more about man than any of our predecessors—not less.

We must approach architecture simply, without fear, without pride—with faith in the human being.

When we reach this point, we have struggled through the thick woods and brambles up the hill to find ourselves on a precipice looking out over the vast expanse of the unknown. It is at this point that the great ones will be able to reach into that stratosphere of understanding too high for most men and bring down to this earth a little of that common inspiration which God grants his artists. This is the way that architecture is achieved.

Everything is ahead of us: The best play has not been written. The best song has not been sung. The best building has not been built.

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DISCUSSION

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Above: In a typical office. Right: Part of the lobby of the Secretariat Building

seen the United Nations building on the screen, and it would not be in existence but for these qualities coupled with his powerful drive.

I should like to give you a few details of Mr. Harrison's career. He started, as all architects should start, by being an office boy. He wanted to be in McKim, Mead & White's office but they would not take him, so he offered to go there as office boy. They would not pay him any salary, so he went there as office boy without a salary, and after a time he went to the boss and said: 'I should work better if I had something to eat.' I understand that he was then given a salary and was promoted.

In the first world war Mr. Harrison commanded a submarine chaser, and after that he spent 10 years, with half a dozen other architects, designing the Rockefeller Centre. Before he designed the Rockefeller Centre he won a Rotch scholarship, which took him to Europe. He actually went to the Beaux Arts, but that does not seem to have done him any harm at all. Just before the recent war he designed the trylon and perisphere at the World's Fair, and since the war he has designed the United Nations building and many others also. It is a record which most of us here certainly envy. I have seen the Secretariat building, and I think it is a building of classic quality, very tenuous and in a way very tender. It is to me a very beautiful building, and I think that any one of us would be enormously proud to be the architect of such a building.

At this hour it is practically the eve of Washington's birthday, so I think it is a very appropriate moment to move a vote of thanks to Mr. Wallace Harrison.

Mr. W. Tanzer (Deputy Director, London Information Centre, United Nations): I feel greatly honoured at being asked to second the vote of thanks to Mr. Harrison.

I happened to be in New York on a visit in November and December last year, and I saw the United Nations building. I should like to tell you about one of Mr. Harrison's exploits. You have heard about the hurricane which struck New York. When I went to the new United Nations Headquarters building the morning after the hurricane, I heard that Mr. Harrison had spent the whole night in the building in order to see what effect the hurricane had had upon it.

Shortly afterwards, the Information Department of the United Nations moved into the new building, and whilst Korea was at that time the subject being discussed by the United Nations, it seemed to me that among the members of the Secretariat the subject of discussion was the United Nations Headquarters building. There appeared to be two groups. One group was composed of those whose homes were at Lake Success, about 25 miles from New York, and who were not very pleased at having to go to New York and back every day. The other group consisted of those who lived in New York and who had formerly had to go to Lake Success and back every day, and they were very pleased to have the new building so near them. I may say that, from the point of view of the Secretariat, the building struck me as the most up-to-date office building that I had ever seen.

I have great pleasure in seconding the vote of thanks.

Mr. Zh. Aghnides: Having been associated with Mr. Harrison, I should like to say a few words. Both Mr. and Mrs. Harrison have worked very hard to promote the aims of the United Nations. I can not say anything about Mr. Harrison as an architect, because I do not know anything about architecture, but I was very much struck by his humanistic views during our years of collaboration, and I hope that I did not inconvenience him too much when he appeared before the Committee of which I had the honour to be the Chairman. I appreciated his breadth of view, and I saw him first as a man and then, accepting the judgment of others more competent than I to judge, as a great architect. We of the United Nations had the good fortune to have Mr. Harrison to design a building for an organization whose aim is to promote the welfare of mankind.

Canon C. B. Mortlock [*Hon. A*]: I had many opportunities last autumn of looking at the new United Nations building in different lights and from different points of view, and there was one aspect of its beauty which no doubt has been perceived by others but which I had not realized from photographs, namely, the way in which the fenestration is used, not so much as a structural feature, but to bestow texture on the building. That gives the building a beauty which seems to me to put it into a new class of architecture. Whereas fenestration has been used as a structural feature, in this case it is used in a new, flexible and lovely way.

Professor W. G. Holford [*F*]: As an architect I should like to make two brief comments on the United Nations building, one being serious and the other not so serious. I will make the latter comment first.

On the night of the hurricane to which reference has been made I was on 42nd Street. Mr. Tanzer said that Mr. Harrison spent the night in the United Nations building, to see what the hurricane did to the building, and I can give a little evidence about what the building did to the hurricane. It was an extremely interesting demonstration of the way in which enormous plane surfaces behave in a high

A window cleaner at work

wind. All round, as Mr. Harrison probably saw, shop windows were not blown in but sucked out of their frames and blown across the street, and I thought that the United Nations building would suffer in some way, but the construction of the building is such that although it bent it suffered no serious damage.

The serious comment that I wish to make is on the character of the building as opposed to what one might call a monumental building. It struck me as very interesting that it was almost a giant reflector of the moods and the atmosphere of the city, not only in a political sense but also in a material sense. The clouds and the reflections of all sorts which one sees in the glass façade show that the building must be a great many things to different people. A great public building of this sort may be seen as quiet and tranquil, dramatic or almost terrible, depending on the light and the time of day, the weather and various other things. It is interesting, I think, that this great building is exactly the opposite of a monumental building, that it is a mirror or reflector, as it were, of moods and atmospheres, and yet behind it there is an enormous hidden world of services and structure without which the more atmospheric character of the building could not be sustained. If I may add a tribute to those which have already been paid to Mr. Harrison, I would say that the real triumph of this building is that it is so simple that, in fact, it will mean a great deal to a large number of different people.

Mr. S. E. T. Cusdin [*A*]: May I make one flippant remark with reference to what the *New Yorker* said about cleaning the glass of the United Nations building and what Mr. Harrison said about the window cleaners? It is very nice to know that the window cleaning problem has been properly studied and that all the window cleaners of this building, which I believe has 19 acres of glass, must be 5 ft. 10 in. in height in order to get the squeegees into the corners. Our Brigade of Guards will have to look to their laurels.

Mr. W. H. Allen [*A*]: This evening those of us who know any stories about the United Nations will want to tell them, and this discussion will become a collection of stories, some amusing and some interesting. Before that danger is so widely appreciated as to stop the flow, I should like to add one story.

Mr. Bold, who is known to Mr. Harrison as the consultant on acoustical matters at the United Nations, said that he was standing in Mr. Harrison's office on the site one day. I do not know whether he was actually talking to him, but there were a number of draughtsmen around him, and he was commenting on the speed with which the building was going forward. He said: 'You are getting on fast; when I was here ten days ago you were only on the fifteenth storey, and now you are up on the nineteenth,' and a voice behind him said: 'Oh, gosh, don't say that; I am only planning the twenty-second now.'

I wonder whether Mr. Harrison would care to add any remarks on the acoustical technology of the building. There are some of us here who would be very much interested to hear anything that he had to say on that subject.

Mr. Wallace K. Harrison: I am very sorry that I can not deal with the question of acoustics. I am sure that you know more about it than I do.

I can not thank you enough for what you have said about the United Nations building, but you must remember that the building was not designed by one man or by a little group of men. No man can claim that he designed the building. It was designed by a group of men from countries all over the world, as far apart as Australia, Russia, South America and England. My greatest hope is that each one of the men who worked on the United Nations building will feel that he and he only was responsible for it.

Architecture of Transport Exhibition

Opened at the R.I.B.A. on 21 February 1951 by the Rt. Hon. Lord Hurcomb, G.C.B., K.B.E., Chairman of the British Transport Commission

The Greyhound bus terminal Chicago. Architects: Skidmore, Owings and Merrill

LORD HURCOMB was introduced by the President R.I.B.A., Mr. A. Graham Henderson, A.R.S.A., who said he believed this exhibition to be the first on the subject of transport to be held since the war. We in this country were making a very strong point of attracting visitors, and since it was desirable that a visitor should receive an early impression of the attractiveness of this country, anything to do with transport was obviously of importance. The President explained that the scope of the exhibition was considerable—it touched all forms of transport; for space reasons alone, therefore, it could not be comprehensive. It could only give examples—it was to be hoped, good examples—of the various buildings associated with transport.

Lord Hurcomb said it was an important feature of the exhibition that it showed examples of the architecture of transport by land, air and water side by side. The architecture of air transport had many lessons to teach those whose vessels circulated on land and in water only. The designers of air transport buildings had, of course, built on foundations laid by earlier providers of transport, but because of their circumstances of operation they had been forced to approach many old problems in an entirely new way, and their solutions would provide a stimulus to all transport architects for many years to come. Lord Hurcomb said that he welcomed the contribution that air transport undertakings had made to the exhibition, and was also happy to see some of our famous old shipping companies represented.

It was, however, only to be expected that the railways should provide a high proportion of the exhibits. And here the visitor, looking around, might wonder why foreign railway undertakings could provide so many photographs of new schemes accomplished, while British railways were represented rather by drawings showing what it was hoped to accomplish in the future. One reason for the smaller output in this country was the fine quality of the buildings inherited from the past. British Railways had a number of fine stations built in the last century by bold, imaginative and forward-looking people who worked with respect to tradition and to scholarship and the rules of their art, but were not afraid to plan liberally for the future and to spend money on premises that were spacious, often handsome, and always well and solidly constructed. This heritage was often overlooked because some of it was overlaid with later and unfortunate accretions. Lord Hurcomb gave an assurance that the Transport Commission endorsed the view of the Committee on Relics and Records, and the care of these historic buildings would be treated as an important trust. Their preservation would be undertaken under expert guidance, and the Commission hoped shortly to invite the Institute to confer with them on the methods to be adopted to this end.

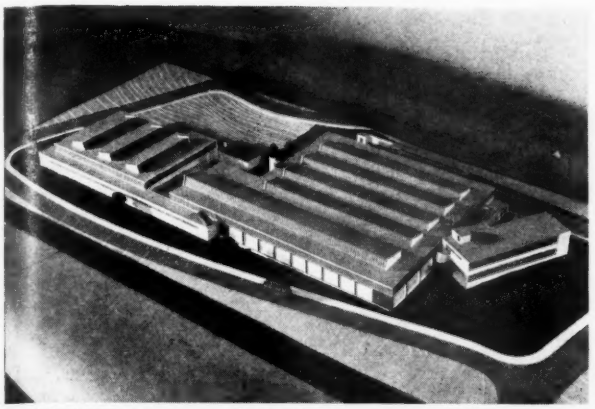
Then we had to remember that many of the buildings shown in the exhibition were simply replacements of buildings destroyed in the war. There was still a good deal of war damage to be made good, but only some of it provided work for the architect. Such buildings as Plymouth North Road Station and Plymouth Millbay Ocean Terminal were, however, clearly linked with the reconstruction programme. It had, of course, to be borne in mind that schemes might undergo changes demanded by local planning requirements, changed economic circumstances or new conditions of railway operation; for a vital and efficient transport system should be ready at all times to adapt itself to its customers' needs.

Nevertheless, despite the admirable planning and good construction of old transport buildings, in many cases traffic had long since outgrown the accommodation provided. Notable work had been done in some cases before the war, and British Transport and London Transport were now grappling with many such problems in their drawing offices. Lord Hurcomb said he was not sure there was not some advantage in being a little behind other countries in new building, because

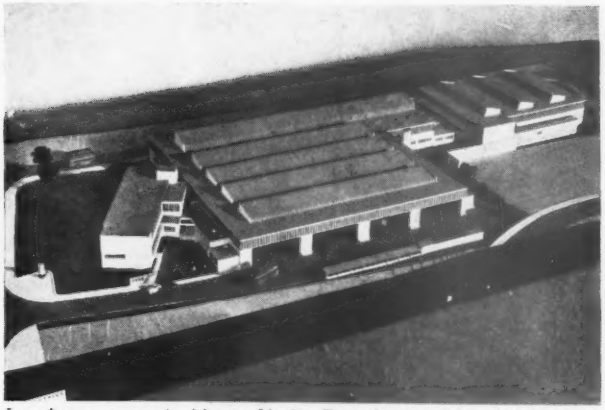
Signal box, Netherlands Railways. Architect: H. G. J. Schelling

when new ideas were being tested in practice faults began to show themselves and further improvements could be worked out. We should thus be able to benefit from others' experience. As architects interested in old buildings, too, his hearers might feel that our present stringencies and restrictions were not without some minor compensations. For example, shortly before the war an ambitious scheme was prepared by the London Midland and Scottish Railway for the complete reconstruction of Euston. Present plans were to introduce substantial improvements within the existing framework, and this gave greater expectation of life to the famous Doric Arch (more correctly, if more pedantically known as the 'propylaeum') and to Philip Hardwick's splendid Great Hall.

Lord Hurcomb went on to say that British Transport was not concerned only



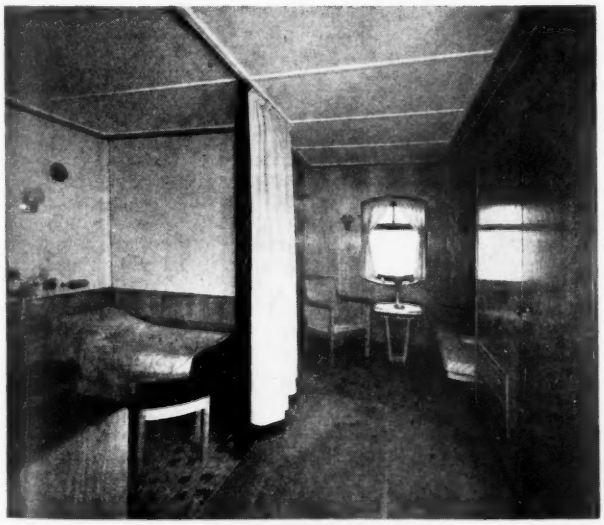
Model of Loughton garage for the London Transport Executive



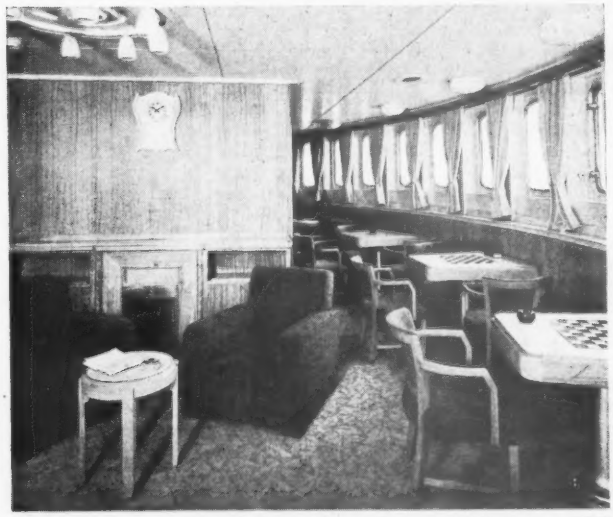
Loughton garage. Architects: Yorke, Rosenberg and Mardall [*FF/A*]

Starnberger Station, Munich. Architect: Fritz Geiger

First-class writing room, s.s. Conte Biancamano

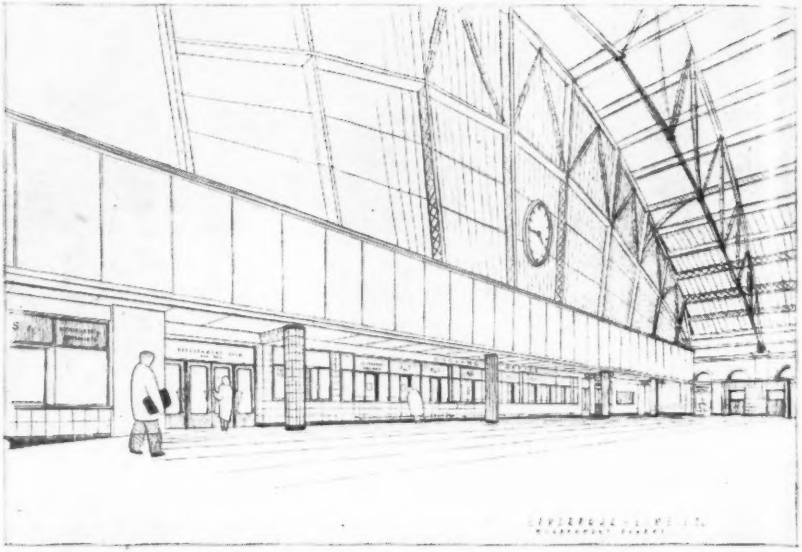


Cabin suite, m.s. Venus. Architect: Palle Suenson

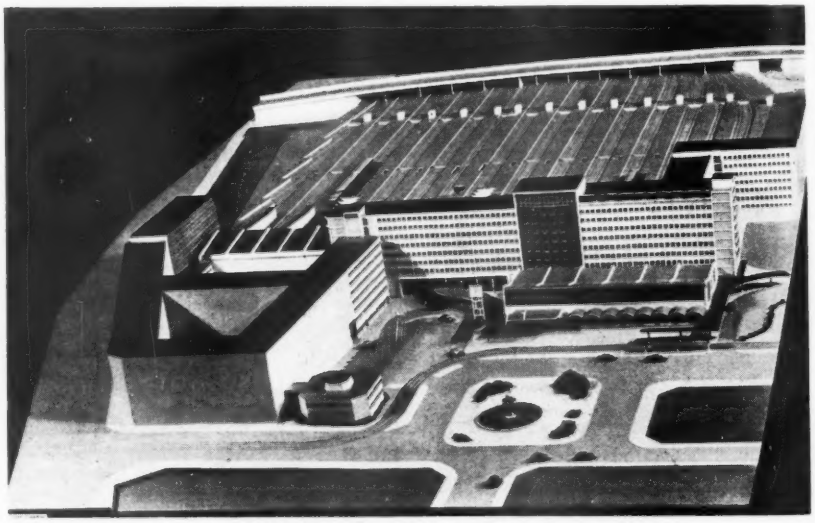


Officers' lounge, s.s. Wanstead. Architects: Easton and Robertson [*FF*]

Signal box, Versailles



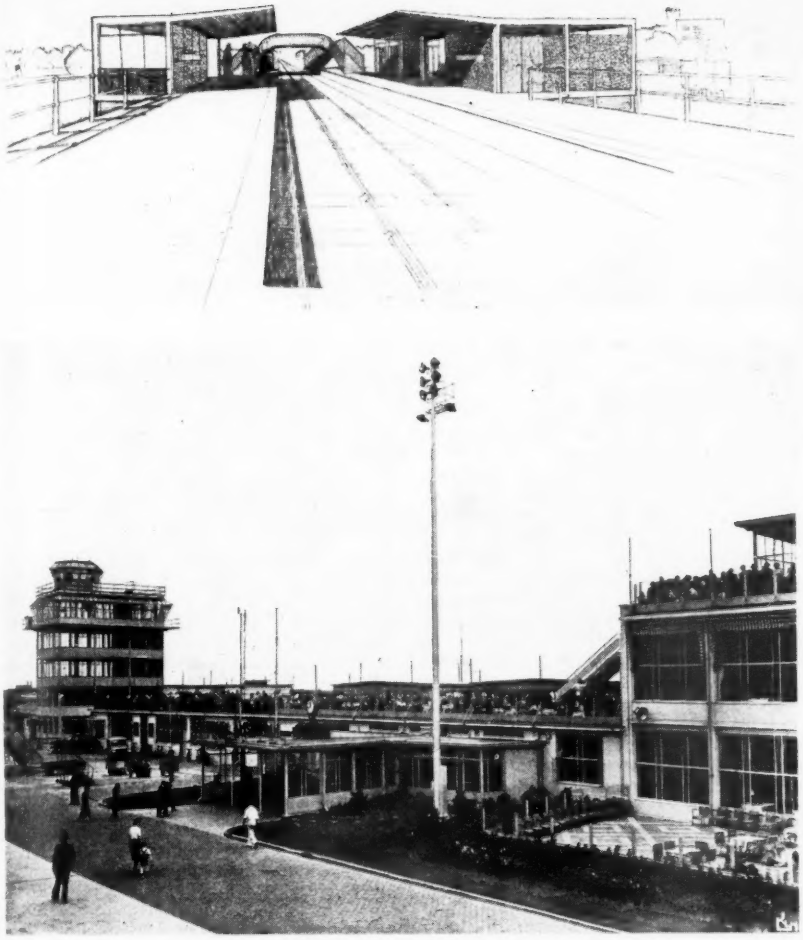
Lime Street Station, Liverpool. Part of improvement scheme. British Railways. Architectural Assistant: T. I. Roberts [*A*]

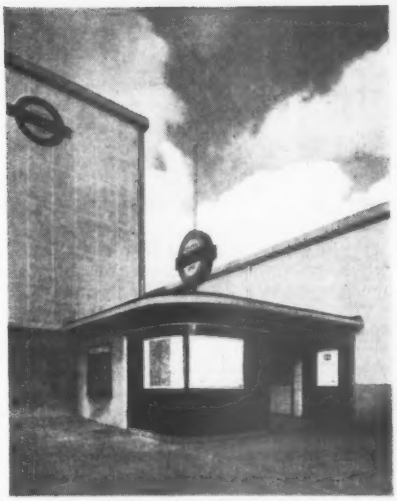


Model of Central Station, Oslo (under construction). Architects: Engh and Qvam

with buildings for the public, but with restoring and improving depots and warehouses, and with providing freight traffic facilities, round houses and motive power depots. London Transport had built some admirable new omnibus garages like the one at Garston, Watford, and the Commission expected to be heavily engaged in garage building during the next few years. The Commission also attached the greatest importance to their programmes for modernization and general tidying of the buildings that remained substantially fitted for the job they had to do. British Railways had twelve such station schemes in their programme for the current year, and if there was no serious deterioration in the economic situation there would be increased activity of this kind in 1952. The drawings of Liverpool Lime Street, Barry Town and Cheltenham St. James's would show the kind of thing the Commission were trying to do. The aim was to provide more convenience and comfort for the travelling public and to improve station working and make it more economical and more efficient. Matters which would receive special consideration were the easing of the traffic flow, improved tidiness, good lighting and sign-posting, comfort in waiting rooms and refreshment rooms, cheerful colour and attractive advertising displays. Much attention was also being given to the design of incidental line-side and road-side equipment such as signal boxes, gantries, mile posts, gangers' huts, chipping bins, and so on.

In the design of new rolling stock he said that the carriage and wagon engineers of British Railways were working in the closest collaboration with the architects. He added that the association between architecture and engineering had always been of great personal interest to him, first at the Ministry of Transport, later in his capacity of Chairman of the Electricity Commission; but never more than at the present time. Looking back over the past two hundred years, said Lord Hurcomb, we could see how fortunate it was that the great civil engineers who built the main body of our canal and railway systems were all-round men with an astonishing range of capability. Many of them had been trained in the old traditions of fine craftsmanship. Yet even they, with all their traditional understanding of formal design, felt they needed the help of architects. In these days the part that architects had to play in the design of transport structures and engineering structures generally was even greater and more important. The Commission and their Executives agreed that the best architectural advice must be called in at an early stage for important and public civil engineering works as well as for works of architecture proper; and that this expert attention should be extended to smaller items such as standard equipment, and that in fact the whole field of formal design should be kept under continuous expert supervision. For himself, Lord Hurcomb said, he looked forward to the increasing collaboration between architect and engineer with confidence and hope. It would not surprise him if, round about the year 2,000, those who came to study and assess the architecture of the middle of the





Top left: Whittlingham Station, British Railways. Architectural Assistant: D. S. Roberts [*A*]. Above: Wanstead Station, London Transport. Architects: T. R. Bilbow [*F*] and G. C. Manly [*L*]

century were to say that this collaboration had brought back to the architecture of transport some of the qualities we admired so much in our early canal and railway building.

Mr. Howard Robertson [*F*], proposing a vote of thanks to Lord Hurcomb, said that he had come to the conclusion, after checking up Lord Hurcomb's career in WHO'S WHO, that his name ought to be Cyril *Transport* William Hurcomb, because 'Transport' was really his middle name; he believed there could be nobody who knew more about transport than did Lord Hurcomb. Mr. Howard Robertson added that everyone would feel great satisfaction at the thought of so much imagination for the future being coupled with this affection for what was good in the past.

Mr. J. S. Wills, President of the Institute of Transport, who seconded the vote of thanks, said that as a member of that Institute he was naturally enough specially interested in the exhibition. He thought it sad that we in this country lagged so much behind in this matter, and said it was most unfortunate from the point of view of architects, transport operators and public that we were subject to so many restrictions; inevitable restrictions, but nevertheless unfortunate in their effect on foreign visitors. He added that Lord Hurcomb had the largest transport job in the world—indeed, probably the largest commercial job in the world. He would, therefore, be particularly concerned with the improvement of all transport buildings as soon as that improvement could be made. If the new buildings were pleasing, the architects would rightly be praised: if they were displeasing, Lord Hurcomb would no doubt be blamed!

Middle left: Schipol Airport, Amsterdam. The terminal building, as reconstructed after the war. Left: Verandah café, s.s. Rangitoto. Architects: Easton and Robertson [*FF*]

Review of the Low-Cost Housing Competition

Organized by 'The Builder'

ON 19 FEBRUARY last Mr. A. Reginald Stamp, Chairman of the L.C.C. Housing Committee, opened the exhibition of drawings submitted in this competition, which was for a terrace house to accommodate a family of five—father, mother and three children of mixed sex—at a cost not exceeding £1,000 based on prices ruling on 1 January 1951.

In promoting the competition THE BUILDER intended it to be a contribution to the national housing problem, and an attempt to reduce rents to a figure the average working-class family can afford; the Editor of THE BUILDER writes: 'The amount of research undertaken and the qualities of imagination and technical skill shown by so many of the architect competitors constitute, it is thought, a contribution on the technical plane to the problem of low-cost housing of which the architectural profession may be justly proud.'

It is indeed as a work of research into housing that this competition ought to be regarded, rather than as a normal architectural competition for a single building. For this reason the R.I.B.A. JOURNAL is departing on this occasion from its rule of not reporting competitions (a service for which it has insufficient space and which in any case is provided by the three weekly architectural periodicals). The problem set in the competition is one of which the whole country is seeking a solution; indeed, the provision of low-cost housing of adequate standards is a matter of concern to all nations.

Perhaps therefore it was as well that the conditions freed the competitors from observance of building bye-laws and the standards laid down in the Housing Manual, 'provided comfort in living is not impaired and constructional stability and general amenity are assured.' The competitors were thus able to devote themselves to a consideration of what a £1,000 house for such a family should be, and in doing so they no doubt bore in mind the present trends in family life and the social conditions under which such a house would be inhabited.

Competitors could achieve lower cost by three methods: first, by reducing floor areas fairly drastically; second, by omitting some items which come on the borderline between amenity and necessity; thirdly, by minor structural economies in traditional building or by adopting a new and cheaper form of construction.

Taking construction first, it is apparent that few competitors envisaged the use of new forms of construction, prefabricated or otherwise. This is not surprising because an architectural competition is not a suitable method for solving what is primarily a series of problems in production and building organization. Moreover, it is now realized that the cost of the structural shell of a house is a relatively small proportion of total cost. Any serious reduction in purely building costs is much more likely to be achieved by close study of building methods and organization over a considerable period of time with a product—traditional or prefabricated—which is thoroughly familiar to the industry. We know now that there is no structural royal road to inexpensive housing.

It is noteworthy that although competitors were freed from the requirements of the building bye-laws, hardly anyone made any serious departures from their general lines. There is a tacitly-accepted code of good practice in the building industry which is roughly parallel with the model bye-laws and most people regard anything less as shoddy. This seems to show that the devising of universal standard bye-laws, at any rate as far as house building is concerned, will involve mainly the abolition of unnecessary restrictions and purely local foibles. No one would be able to show that any of the winning designs are not structurally sound, sanitary, weatherproof and fire-resisting—four qualities which the bye-laws are intended to ensure.

Battles of opinion are much more likely to be waged over the two other methods of cost reduction mentioned above. As regards overall floor areas, it can be agreed that figures in themselves are not necessarily significant. There have been plenty of post-war plans in which the extra 100 to 150 sq. ft. added since the war have been largely wasted. An outstanding virtue of this competition has been that it has forced competitors to consider *usable* floor space, not only in passages, but space in living-rooms and bedrooms as well. The planning of the bedrooms in the winning design are a good example of how to achieve usable space in rooms of 120 sq. ft., 110 sq. ft. and 62 sq. ft.

It is not to be assumed that the plans of the winning design, nor those of the premiated and commended designs, fit all types of living, or all aspects. It is accepted nowadays that what is a good plan in urban housing is probably unsuited to rural areas and that the north, midlands and south have somewhat different ways of living. The premiated plans are, however, a demonstration that at least some types can be produced within the price limit.

Most competitors have abandoned the parlour, though there are large sections of the public which still like it. The alternative is between the all-purpose living-room plus working kitchen and the living-kitchen plus small parlour. As someone once said: 'People like parlours for homework, courting, wedding presents and funerals.' Moreover, the practice of 'meals in the kitchen' has been extending upwards through the income levels in recent years, mainly as a method of saving the housewife's labour. The really serviceable and comfortable kitchen-living-room probably still remains to be designed. There is great scope for argument here.

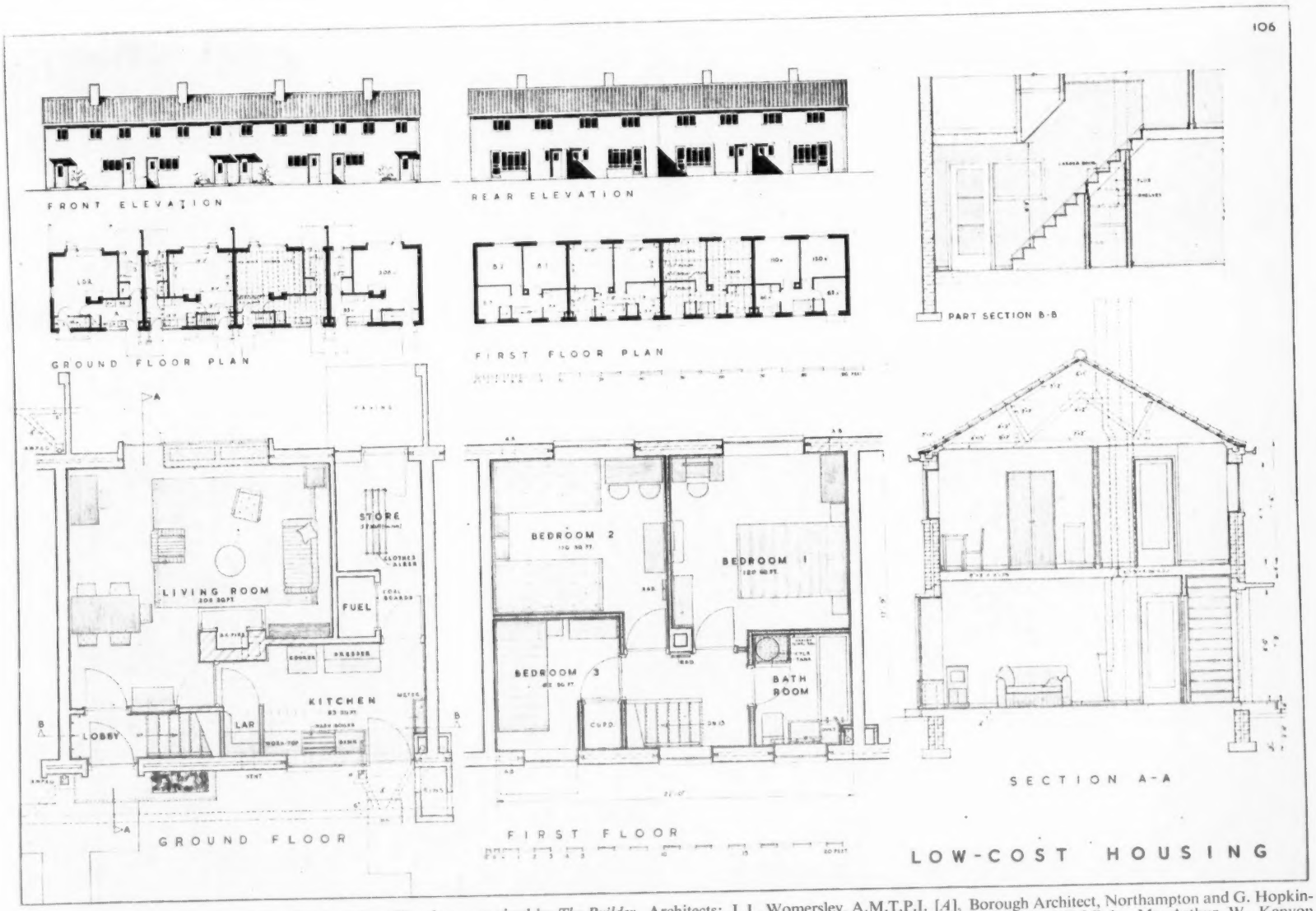
There is equally great scope for argument over the separation of w.c. from bathroom, though no one seems to lament very much the omission of the second w.c. People tend to take up determined attitudes for and against the separate w.c. and to argue it with heat. Most competitors, including the winners, argue that the separate w.c. is something that has to go if low cost and low rent are to be attained. Not only does it need a partition, door and window, but it almost always adds to landing space and thus to overall floor area.

There is much less disagreement about room heights. The 7 ft. 6 in. upper storey height is generally accepted, though some competitors, including the winners, have made their lower storey height 7 ft. 9 ins. It is worth remembering, however, that the Scots still adhere rigidly to a 9 ft. lower storey and an 8 ft. upper storey, regarding anything less as a serious lowering of standards. Opinions on this point are by no means unanimous; one feels that they are often based on prejudice and custom rather than on sound reasoning and scientific data, possibly because no real scientific data exist.

Not many competitors have paid noticeable attention to heating, though many, like the winners, have done the right thing by placing an all-purpose unit in the centre of the plan. Today the Egerton Report aims of whole house heating seem to have been killed by rising fuel costs. The winners are undoubtedly right in providing one all-purpose heat source; this is something the householder can afford to run, even if 'optimum temperatures' are not achieved everywhere in the house. Low running costs must go with low rents.

This competition is a serious attempt to bring housing back once more into the field of economic rents. In his speech at the opening of the exhibition, Sir Lancelot Keay made the point that local authorities can not go on indefinitely subsidizing new housing out of rent pools—and he should know. Sooner or later we must get back to economic rents or at least far nearer economic rents than most housing has been in recent years.

The proprietors and editor of THE BUILDER are to be congratulated on their public-spirited enterprise in organizing this competition. If it has done nothing else, it has shown that we have by no means reached finality in that complex and difficult technique which is housing. It should be remembered that British standards of accommodation and amenity in housing always have been the highest in the world. Even were the winning plan in this competition to be adopted as a norm, our standards would remain the highest. We may well be proud of British housing—but there is still room for progress.



Design placed first in the Competition for Low-Cost Housing, organized by *The Builder*. Architects: J. L. Womersley, A.M.T.P.I. [*A*], Borough Architect, Northampton and G. Hopkinson, B.Arch., A.M.T.P.I. [*A*], Deputy Borough Architect, Northampton. The Assessors were Sir Lancelot Keay, K.B.E., M.Arch., Past-President R.I.B.A., Mr. Arthur W. Kenyon C.B.E., M.T.P.I. [*F*] and Sir Stephen Tallents, K.C.M.G., C.B., C.B.E. [*Hon. A*]. The second premium was awarded to Edward Narracott and Associates [*A/L*], and the third premium to H. Underhill Diplock. Designs by the following received Hon. Mention: A. G. Goodair [*A*], Johnson and Crabtree [*FF*] and Howard N. Michell [*A*] and T. Snow. Three Highly Commended designs were by Norman R. Minter, John W. Poltock [*A*] and Hon. R. de Yarburgh-Bateson, M.A., A.A. Dipl. [*A*].

Floor Finishes

By F. C. Harper, B.Sc., Ph.D.

Read at a meeting arranged by the R.I.B.A. Architectural Science Board, 27 February 1951

Alister G. MacDonald [*F*] in the Chair

ALTHOUGH THE SELECTION of a suitable floor finish is a problem that an architect must face with every type of building, this paper is restricted to discussing floor finishes for houses, offices, shops and hospitals where, broadly speaking, the floors are subjected only or mainly to foot traffic. The requirements for these domestic buildings differ from those for industrial buildings, where the floors often have to withstand not only heavy truck traffic but also the effects of trade effluents. Each industry has its own requirements for a floor and needs individual consideration.

Until a few years ago the choice of a floor for domestic use was not difficult. Timber was by far the most widely used material for floors in dwellings; boards on joists or blocks on concrete were the most usual forms of construction; strip, parquet and plywood were also available. The occupant then provided further coverings, such as carpets, rugs or linoleum, as part of his furnishings. Where the conditions of use required special properties, as in offices, shops or hospitals, a range of materials was available; this included clay tiles, magnesite composition, asphalt, and rubber. All of these materials had been in use for many years, and there was a wealth of experience with each of them.

Although all these materials are still available, present-day conditions have greatly complicated the position. For various reasons many of them are scarce, just when demand is high, and there is a shortage of men skilled in the laying of some of them. Probably the most important change, however, arises from the official ban on the use of softwoods for suspended ground floors, which has necessitated the widespread use of solid concrete ground floors.

It is common practice now for the architect to select the finish for a concrete floor; in effect, the floor finish is regarded as part of the structure rather than as part of the furnishings. He may have to make his choice of a material with little background of experience of its use for domestic purposes to guide him. Further, the shortage of timber has stimulated the production of an array of new flooring materials.

The selection of the kind of floor surface to be used, be it one of the newer forms or one of which the architect has had experience, is in effect a synthesis of a number of different factors, and the weight given to each factor will vary according to the different conditions of use. The factors involved may be grouped broadly under the headings of appearance, cost and comfort. Obviously, data from laboratory experiments alone are not sufficient to allow the best selection to be made. The architect's design of the building will have imposed limitations on the appearance he desires, and the relative importance of the three factors must be judged from a knowledge of the conditions of use in a particular building. On the other hand, it is possible, from laboratory examinations, to acquire knowledge which will assist in the selection. The appearance of a floor after it has been used is probably more important than its appearance when new; and it is possible, within limits, to predict the changes that may take place in use. Similarly, information which contributes to the assessment of cost and comfort can be obtained experimentally.

In the laboratory examination of a floor the kind of tests used depends on an analysis of what may be involved in these three main factors, and in reporting on floors it has been the practice of the Building Research Station to give the results of this detailed 'break-down' without necessarily re-combining them into conclusions on the three main groupings of appearance, cost and comfort. The reason for this is that the items in the detailed analysis are themselves often sufficiently important to weigh in the final judgment by the architect.

It is the aim of this paper to explain the analysis which is made for test purposes and the nature of the information obtained, so that it may help the architect when selecting a floor finish for a particular building. Viewed as a whole, the subject is relatively new, and circumstances have made it necessary to carry out tests on both new and old materials before the necessary background researches have been completed. Some of the tests used are, therefore, not as satisfactory as might be desired, and others may prove to have shortcomings when more basic data become available. The difficulties on this score are mentioned later when some of the properties of floor finishes are described.

Dealing now with the three main headings of appearance, cost and comfort in more detail: the appearance is chosen to harmonize with other furnishings, and the choice is essentially personal. Once the choice is made, the user rightly demands that a good appearance shall be maintained for a reasonable time. All the agencies that cause deterioration of a floor finish affect only the appearance. Wear becomes objectionable when it has materially altered the appearance; when, for example, the pattern has worn from a printed linoleum. Materials that are easily dented, and those liable to cracking, quickly become unsightly. Cost may be considered in much the same way, for obviously the choice of a floor is made on the assumption that the cost will be distributed over a reasonably long life. There is also another aspect of cost which is often overlooked; some floor finishes need a more elaborate base than others, and the cost of the additional labour involved in preparing the base may far outweigh any difference in the price of alternative finishes. The foundation needed depends on the properties of the finish. Pitch mastic and linoleum may be taken as an example. Pitch mastic, because it is resistant and impervious to water, requires no damp-proof layer below it, and can be laid on level brush-finished concrete. Linoleum, on the other hand, is very sensitive to moisture and must have a damp-proof layer below it; it requires a smooth trowel-finished screed on the concrete because it is liable to tear or dent on rough concrete. The cost of providing a damp-proof membrane and a smooth finish may represent a high proportion of the total cost.

There are many agencies which combine to mar the appearance of a floor, to reduce its life and to increase its cost. It is convenient to follow the life of a flooring material and to discuss these agencies in turn.

Ease and economy of laying are the initial requirements. Almost all floors require to be laid by skilled men if satisfactory results are to be obtained, and 'easy laying' must never be expected to mean laying by the unskilled. It does mean, however, that there should be as little preparative work as possible—few laying operations (there are floors which require five distinct operations by the layers), reasonably cheap adhesives, and no elaborate underlays. Obviously the only simple way of judging ease of laying is to make an inspection of work in progress.

Moisture is one of the most potent agencies in causing deterioration and its first effects may become apparent soon after laying.

The hardening and drying of most jointless floors is accompanied by shrinkage, which may cause cracks to form. These cracks, unwelcome because of their unsightliness, have the added disadvantage of accelerating the break-down due to wear. Assessment of the liability of a material to crack is difficult because of the many factors involved. The drying shrinkage of a jointless flooring material is easily measured by any of the conventional methods. This measurement gives an indication of the potential shrinkage of a material but is not necessarily a measure of the shrinkage that will take place in practice, because the adhesion of the floor finish to a concrete sub-floor may have a restraining influence. By preparing specimens on concrete bases it is possible to measure drying shrinkage under conditions of restraint, but large variations have been found between different samples of the same material, and there

is very little correlation between the values so obtained and the known liability of the materials examined to crack. Another difficulty is that the usual methods can deal only with specimens that are strong enough to handle; any shrinkage that occurs in the period between placing and hardening escapes detection. Furthermore, the rate of development of strength in relation to the rate of shrinkage and also the tendency to creep may well influence the liability to cracking. Work on these problems is proceeding but is far from any conclusion. At present all that can be said is that a high unrestrained drying shrinkage is a potential disadvantage.

The shrinkage of most sheet and tile materials is usually complete before they are laid, and shrinkage cracking in use is not common. They may be affected, however, by absorbing water or other liquid from the adhesive on which they are laid. This absorption from the underside causes expansion which, because it is not uniform through the thickness of the material, results in curling and loosening. Liability to this defect can be detected by measuring the amount of curling resulting when the bottom surface of a specimen is held in contact with the liquid concerned. Various methods have been used for this, and one has been incorporated in an American Federal Specification for asphalt tile[1]—the tile known in this country as thermoplastic resin tile.

Where flooring materials are laid on concrete in contact with the ground they, or the adhesives used in fixing them, may be affected by rising moisture; or they may themselves be unaffected yet may allow enough moisture to pass through them to cause damage to other furnishings. Some, on the other hand, are sufficiently impermeable to serve as a damp-proof layer.

These conditions of use can be simulated by preparing samples of very permeable concrete, attaching the material to be tested by an appropriate method, and placing the composite specimen on wet sand. Observation of their behaviour, or measurement of the resulting expansion, reveals the materials that are susceptible to damage in these circumstances.

Of the common floor-surfacing materials, only mastic asphalt and pitch mastic are sufficiently impermeable to moisture to serve as a damp-proof layer. All others need a damp-proof layer to protect them from rising moisture. On dry sites this may be dispensed with (water-sensitive materials have often been used successfully without this precaution), but to do so involves some degree of risk. It is always difficult for the architect to decide whether the site is dry enough and whether it will always be dry enough to warrant taking that risk. Where there is any doubt it is to be remembered that it is cheaper to provide a damp-proof layer initially than to wait until after the floor has failed.

Flooring materials other than wood, together with some of those made from wood waste and magnesite composition, are little affected by atmospheric moisture. The materials made from wood expand and contract with rising and falling humidity and the only precautions that can be taken to avoid damage are waxing to prevent the absorption of water and adequate fixing to restrain movement. In conditions of very high humidity, particularly when the temperature is low, beads of moisture form on some magnesite floors. This is known as 'sweating'. The cause is obscure but investigations suggest that it may be due to impurity of the raw materials or to incorrect proportioning. No permanent cure for sweating is known. It can be reduced by waxing the floor regularly to reduce access of water vapour.

Washing-water may affect a flooring material by softening the surface and making it more vulnerable to wear. A simple scrubbing test detects materials liable to damage. If water penetrates below a sheet or tile finish it may soften the adhesive and cause loosening and curling. The test for rising moisture already mentioned serves to reveal the materials that may be expected to be sensitive to washing-water.

Information gained from laboratory tests can thus indicate whether cracking is likely, whether a damp-proof layer below the finish is necessary, whether use in damp situations such as bathrooms and kitchens is to be avoided and whether care in washing is necessary.

Abrasive wear is the greatest single agency in reducing the life of a floor. Because of this, methods of comparing the rates of wear of flooring materials have been the subject of much investigation. Three basic methods have been followed; performance trials have been made of the materials in service; accelerated abrasion tests have been devised; and, for wood, performance and laboratory tests have been correlated with features of the microscopical structure, so that wearing qualities can be assessed by microscopical examination.

Performance trials are very convenient and have been much used at the Building Research Station. The advantages are obvious; the main disadvantages are that it takes a long time to obtain results and there is difficulty in securing both standard conditions and uniform density of traffic for each material.

Of the wear machines devised to overcome these difficulties by accelerating the test under standardized laboratory conditions none, unfortunately, has been found to classify the whole range of flooring materials in the order of wear resistance found in service and at the same time to reproduce the relative effects on their appearance. The most that can be achieved by an accelerated wear machine at present is to classify materials within a restricted range. For this limited application two machines in particular have proved successful.

For tests on flooring timbers, a machine[2] developed at the Forest Products Research Laboratory has proved very successful. It passes a panel of timber to and fro below a stamping tool and a rubbing tool and is found to classify the timber in the same order both of wear and appearance as was found in a parallel service trial in a London Underground station. It did not classify many other types of flooring in the correct order.

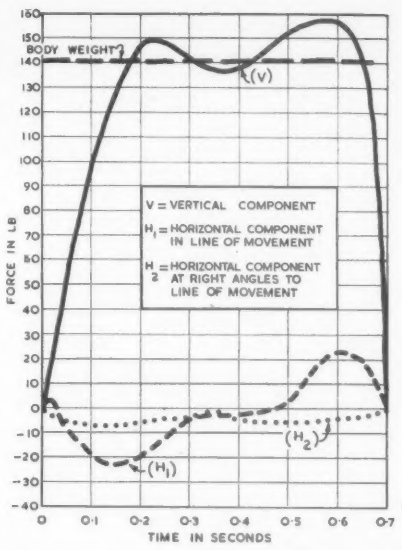


Fig. 1. Graph showing force applied to the floor during walking

Another machine[3] has been found to be useful for accelerated tests on concrete. The test specimen passes to and fro beneath a stationary hopper which rests on it and which feeds sand on to the surface through a slot. This machine is capable of differentiating between concrete surfaces to which various dressings have been applied, but it too is found to be unsuitable for use over a wide range of flooring materials.

The method of assessing wear resistance by examining the structure of the material can be applied only to materials of the same type. The method has been developed successfully in the microscopical examination of timber.[4]

It is probable that the reason why no more than limited success has been achieved with wear machines is that they seek to accelerate the process of wear by increasing the forces applied to the material. It may be that a machine designed to simulate more closely the forces applied to the floor by pedestrians would be more sensitive. To that end an investigation is in hand at the Building Research Station in continuation of work initiated by a wartime American team concerned with the design of artificial legs.

The strains produced in four light-alloy hollow pillars when a person treads on a steel plate supported by them can be measured by suitably disposed resistance strain gauges. From these measurements it is possible to calculate the vertical and horizontal components of the force applied to the plate by the foot, the point of application of the force and the amount of torque.

The work, though beset with practical

difficulties, has produced interesting information on the mechanics of walking at normal speeds. It is clear that there is a basic force pattern of walking (Fig. 1). Individual peculiarities in walking, so noticeable to the observer, are seen as very minor differences in this pattern; major differences occur only where there is some pathological abnormality in the limb. In Fig. 1 it may be seen that the step occupies slightly less than one second. The vertical component of the force (V) rises smoothly and rapidly, but without any impact, to a value greater than the weight of the person. This additional force is produced by the momentum of the centre of gravity of the body in its movement from behind to a point above the point of application of the force. The decrease which follows is caused by the centre of gravity moving forward and away from the point of application. The second rise in the vertical force is caused by the muscular action, which, acting through the ball of the foot, pushes the body forward for the next step.

The horizontal force in the line of progression (H^1) shows a small momentary backward thrust at first; the force is then directed forwards until the centre of gravity has passed the point of application of the force, when it again acts backwards during the 'push off' phase. The horizontal force at right angles to the line of progression (H^2) is small and in the same direction throughout the step, to the left when the right foot is in contact with the floor and *vice versa*.

Torque patterns, not shown in Fig. 1, are more complex: there is a general tendency for the foot to rotate inwards with the ankle as pivot.

To find the change in area of contact of the foot with the floor, the subject steps on a sheet of armour-plate glass fitted with a measuring grid. With the lighting so arranged that the contact area is clearly distinguishable, cinematograph pictures of the step are taken vertically from below the glass. Again there is a basic pattern. The change in area of contact with time, however, shows more variations than the force pattern, probably because of the greater effect of footwear. Wide differences are found between the two feet of the same person.

When observations have been made on a sufficient number of people it will be possible to strike an average for the changes in force per unit area exerted during the walking step. With this information it should be possible to design a machine that will closely reproduce the pattern of an average walking step. It will remain to select a uniform and easily-obtainable material to serve as a standard shoe and then to correlate the performance of the machine with the results of controlled service tests. Much therefore has yet to be done before a wear test applicable to the whole range of flooring materials can be available.

The static loads applied to a floor in domestic use are considerable; the greatest come from pianos, bookcases and bedsteads. Such loads are often concentrated on castors or metal studs and may reach the order of 400 lb./sq. in. Loads of this order are liable to damage the floor and make it unsightly.

Any method of assessing the merits of a floor in this respect needs to distinguish between materials that become dented and do not recover, those that become dented and recover and those which are not dented. Standardized methods for measuring the indentation of rubber sheet, linoleum, asphalt and thermoplastic tile make use of a variety of machines. Most of them apply the load to a very small area and none of them takes account of recovery. In practice it matters little if a floor becomes badly dented, so long as it recovers enough for the residual indentation to be difficult to detect. Dents of equal depth are not necessarily equally unsightly; those on patterned or textured materials are less apparent than those on plain-coloured or smooth materials.

In the test used at the Building Research Station, a piston of 1 sq. in. cross section is pressed into the material under loads of up to 400 lb. for 24 hours. The rate of penetration and the recovery over a period of 24 hours after removal of the load are measured. The visibility of the residual dent when viewed at floor level from a normal standing height is also noted.

At present the loads applied by furniture are often equivalent to those that would be applied by a person seated on a shooting-stick; it is inconceivable that a shooting-stick should be used as an article of furniture. Instead of aiming to produce a material that is highly resistant to denting, which may involve the loss of equally valuable properties, the better course would be to design furniture so that the loads are spread over larger areas. It should not be difficult to do this without making the furniture more difficult to move.

Most other agencies that act to harm or mar a floor relate to either accident or misuse.

One aspect of some importance is the use of incorrect methods of cleaning. Overzealous use of the scrubbing brush and abrasive powders can very materially reduce the life of a floor. The choice of the correct polish is also important. Some floor finishes, such as mastic asphalt, rubber, or thermoplastic tile, are affected by turpentine or white spirit, the media commonly used in compounding paste polishes. A new floor finish should, therefore, be examined to find the effect of these solvents so that the right type of polish may be used. Polishes containing wax emulsified in water are safe with most types of floor.

Turning now to the 'comfort' of a floor finish, there are several aspects to be considered. During his waking hours the occupant is in almost continuous contact with the floor, and receives through his feet strong physical reactions to its properties. Slipperiness affects his balance: the thermal conductivity and heat capacity affect his sensations of warmth: his quiet and general well-being depend in some measure on the properties of the floor.

Many attempts have been made to measure slipperiness, and many slip-testing machines have been devised. Some move standard blocks slowly across the specimen; one shoots a block across the floor; and another uses a swinging pendulum which glances across the specimen. All of them aim to measure slipperiness in terms of an arbitrary index peculiar to the particular machine.

Some of them are capable of classifying materials in an order that accords reasonably well with an appraisal based on general experience of their relative slipperiness in service. It is, however, impossible in this way to decide where within the range and at which value slipperiness becomes dangerous. The danger limit must be related to practical conditions. This is difficult because an informed observer when asked to cross a test floor is forewarned of the risk. He does not intend to fall, and adjusts his manner of walking to suit the condition of the surface. American observers have circumvented this difficulty by making measurements on floors that have caused accidents. Opportunity to collect information of this kind is necessarily limited.

The difficulty may be resolved by consideration of the forces applied to the floor by the foot (Fig. 1). To walk without slipping, the frictional force (F) between the shoe and the floor must be always greater than the horizontal component (H^1 or H^2) of the force applied by the foot, i.e. $F > H^1$ or H^2 for safety. The frictional force (F) is, however, proportional to the vertical component (V) which presses the shoe against the floor, i.e. $F = V\mu$ where μ, the coefficient of friction, is constant for the particular pair of materials. It follows that $V\mu$ must be greater than H^1 or H^2 or $\mu > \frac{H^1}{V}$ or $\frac{H^2}{V}$ for safety. That is to say, the coefficient of friction between the floor and the footwear must be numerically greater than the ratio between the horizontal and vertical components of the force exerted by the foot on the floor. For walking in a straight line $\frac{H^2}{V}$ can be ignored. In making a turn $\frac{H^2}{V}$ assumes greater importance.

In Fig. 1 peak values of $\frac{H^1}{V}$ occur three times in the step—in the very early stage, in the initial phase, and in the final phase—and these values lie between 0·3 and 0·4. Hence a floor will be slippery if the coefficient of friction between the shoe and the floor is less than 0·4. The coefficient of friction can be measured fairly easily by established methods. Thus a study of the forces involved in walking can be used to deduce the point at which slipperiness becomes dangerous and to express it in terms of coefficient of friction. Further work must be done to define the danger limit more precisely for a wide range of people, not only in straight walking, but in turning and in going up and down stairs. The effect of footwear on the ratio between the horizontal and vertical components of the force H must also be studied.

In considering the influence of the thermal properties of a floor finish on comfort, a distinction must be drawn between the effect on the overall heat loss from the room and the effects noticeable by touch. A floor finish has little influence on the total heat loss from a room. The provision of wood blocks, a material of relatively high thermal resistance, will reduce the thermal transmittance of a concrete floor on hardcore in contact with the ground from about 0·20 to 0·15.[5] Because only about 15 per cent of the total heat loss from a room is by transmission through the floor, this 25 per cent reduction in thermal transmission of the floor has the effect of reducing the total heat loss by only about 3 per cent, and is therefore of little practical significance.

The sensations that cause a material to be described as 'warm' or 'cold' are more important and are experienced in two different sets of circumstances—when walking barefoot and when sitting or standing for long periods with the shod feet in contact with the floor.

As has been shown above, the duration of contact of the foot with the floor in a walking step is about 0·7 sec. There can be, in that time, an appreciable loss of heat from the sole of the bare foot. The rate of loss of heat determines the sensation of coldness, and depends on both the thermal capacity and the thermal conductivity of the flooring material. The 'warmth' of materials can be measured in terms of the product of these two quantities, or a direct calorimetric method[6] can be used. This latter method measures the rate of fall of temperature of a metal block, initially at blood heat, when it is placed in contact with the material under test. From the measurements each material can be assigned a numerical value. Touch by the hand is found to afford a sufficiently sensitive means of assessing warmth to the foot. If each of a range of materials, all at the same temperature, is touched in turn, the sensations of warmth can be placed in virtually the same order as that arrived at by making calorimetric measurements. It should be possible to draw up a simple scale of touch, using selected well-known materials as reference points.

When the feet are shod and in contact with the floor for long periods, the conditions that cause a cold sensation are entirely different and vary from person to person. Experimental work[7] on the conditions that cause the feet to feel cold has shown that the air temperature in the room and draughts along the floor have a major influence. With a comfortable air temperature, and so long as the conditions are not unduly draughty, little difference in sensation is experienced whatever the kind of floor. When the air temperature is low, the classification arrived at on the basis of sensation is closely related to the order of the thermal transmittance of the materials; draughts have an overriding influence. It is, therefore, an advantage to eliminate draughts and to provide thermal insulation below the floor surface if the air temperature in the room is likely to be low.

Although it is well known that the floor finish influences the amount of noise from footfalls, measurement of noisiness is difficult and has not yet been studied in any detail. Tapping the material with a hard object can give some indication of noisiness, but it must be remembered that the method of fixing it to the floor will have a considerable influence. A soft floor finish, by its cushioning effect, may reduce the transmission of impact noises to the room below, but for most materials the reduction is slight. The insulation of floors against transmission of impact and airborne sound is best achieved by structural methods such as the use of floating floors or pugging[8].

Although a comprehensive testing schedule for floor finishes is still not available, there are sufficient test methods which, allied with experience, can indicate the potentialities of a finish. For any situation the choice of material has to be made after weighing its merits for that particular type of use. To assist this choice a table has been presented in National Building Studies Bulletin No. 11[9]. In this table the materials and their properties are classified on the basis of generalized deductions from laboratory tests and experience in use. With the aid of this table the would-be user should be able to make a discriminating choice and thus avoid major difficulties that can not be foreseen from a casual inspection of a small sample.

DISCUSSION

Mr. F. L. Brady: As a manufacturer of flooring, I should like to say how valuable the investigation which Dr. Harper and his colleagues are pursuing at the Building Research Station can be.

There are two important points that I should like to illustrate by reference to one or two types of flooring material. I have in mind the point that Dr. Harper made, that the architect's choice of flooring depends on appearance, cost and comfort. It is unfortunate that those factors are hardly assessable technically. I think that can be shown by somewhat extending the range of floor coverings that Dr. Harper mentioned in his lecture.

Let us start with a well-known floor covering, the carpet, which is a most important flooring material. About 30,000,000 yards of carpet and rug flooring are absorbed by the home market each year. It is possible to point to many demerits of carpet as a flooring material; for instance, the wear, in comparison with other materials, is distinctly poor. The carpet is difficult to clean, it is not waterproof, it is markedly subject to decay, and it is readily damaged by fire and readily marked. The important factors in connection with carpets are two; namely, that they can have a superb appearance—by a combination of colour, design and texture—and can provide superb comfort. These qualities are so important to the user that the obvious and well-recognized defects of carpets are entirely ignored. Why does not everybody have them? Simply because everybody can not afford to pay £3 to £10 per yard for them. Therefore some people buy linoleum instead. The defects of linoleum also are apparent. It is liable to fungal decay under damp conditions, it is subject to ageing, it is markedly indentable, and certain types change very much during the course of wear. Linoleum has, however, two outstanding properties which cause people to choose it and which are responsible for its widespread adoption. They are the continuity of the surface, which is particularly important when the material is used for covering wooden floors, and the ease with which its appearance can be preserved. Also, of course, many types have excellent wear resistance.

I should like to refer also to another flooring, in regard to which entirely different considerations come into the picture, namely, pitch mastic flooring, which was extensively used during and after the war. It is again a material whose defects are obvious. It is distinctly indentable and it is by no means attractive or easy to maintain, but during the war we were extremely glad to have it, simply because it was available, as all the ingredients of it were obtainable in this country.

I do not think that technical factors act as a useful guide in the choice of a class of flooring, though I agree that they are very useful in determining the choice within a class. Again, I think that such considerations must tend to make us mistrust tabulations of the properties of floor coverings of entirely diverse classes, because they give equal prominence to demerits and disadvantages, whereas it is the merits and advantages which determine the choice between classes.

I am sure that some of us who are present this evening very much welcomed Dr. Harper's reference to the impossibility at present of devising a wear test which is able to distinguish between materials in the diverse classes. That conclusion of the British workers on the subject has been confirmed by those who have studied this subject in America at the Bureau of Standards, therefore anything that Dr. Harper can do to publicize the fact that these wear tests, in which different materials are compared, are misleading, or to secure that suitable wear tests are applied to particular materials, will be of help not only to manufacturers and users in this country but also to British manufacturers in their efforts to maintain their export market.

Dr. Harper remarked that, of the common floor surfacing materials, only mastic asphalt and pitch mastic are sufficiently impermeable by moisture to serve as a damp-proof course. I would not question that, but I would suggest that to act as a damp-proof course is not the prime function of a flooring. A reasonable demand to make on the flooring material, or the floor system as I prefer to call it, is that it should prevent an undue access of moisture to the living-space and that it should protect itself from the adverse effects of rising moisture. I can think of at least two flooring systems which fulfil those conditions, namely, wood block flooring, fixed in a suitable mastic,

and thermoplastic floor tiles also fixed in a suitable mastic. Of course, if either of these systems is covered with entirely impermeable layers there may be an accumulation of moisture which will be undesirable, but that is quite abnormal and not at all the expected treatment for such floors to receive. In their effect as barriers against rising moisture these two systems are very much nearer to asphalt and pitch mastic than they are, for example, to bare concrete.

Dr. Harper said that the indentation of floors has been measured but not the recovery of floors after an indenting load has been applied. The current British Standard Specification for linoleum includes, I think, a test of this character, in which, after a load has been applied, there is an opportunity for the material to recover. I had an opportunity last year of seeing a draft of the proposed American Specification for vinyl flooring, and Dr. Harper may like to know that that also includes the very desirable test for recovery from indentation.

I agree with one of Dr. Harper's concluding points, namely, that for any situation a choice of material has to be made after weighing its merits for that particular type of use. I think that in comparing floorings it is the question of their merits that chiefly dictates the choice.

Mr. J. H. Griffiths: Speaking as a manufacturer, I would say that most of Dr. Harper's remarks were pure distilled wisdom, especially those with regard to moisture, which, in my experience, is a greater cause of failure of flooring than is wear, and that applies to nearly all types of flooring. Moisture from below is very troublesome, and I think that Dr. Harper's advice to put in some sort of cheap damp course is very wise.

The average treatment that a floor receives in washing is also a very big cause of failure of floors; if floors were treated properly and not just handed over to a gang of happy charwomen, they would give the architect value for his money.

On the question of wear machines, as a manufacturer I am in complete agreement with Mr. Brady and Dr. Harper. We are often called on to show test results to architects, and to show test results to them is to mislead them. Some machines, as Dr. Harper said, differentiate between particular types of flooring. If one takes one type of flooring and matches it with a slight variation of the same type, one can get a result from the machine, but to compare one with another is just hopeless.

The last point that I wish to make is on the question of acoustics, on which the manufacturer is always at variance with the architect. The architect says: 'Your floor is noisy', but, as Dr. Harper said, surely that is a problem for the architect. The flooring generally can do very little to make a building quiet.

Mr. C. Roy Fowkes, A.M.T.P.I. [*A*]: I should like to thank the Architectural Science Board for arranging this lecture. We have had lectures on heating and heat insulation—on acoustics, sound insulation and lighting of buildings, but this important subject of floorings has been rather neglected. There is something traditional about this. We look back on the old baronial halls, and we see their walls clothed with tapestries and their ceilings beautifully carved, and a great deal of consideration was given to their windows, but what do we find on the floors? Just earth and possibly reeds.

I think that as architects we have not yet given sufficient consideration to the subject of flooring materials, and that is probably due to the fact that we have relied too much on wood for our floors. It has always astounded me that our great architects and decorators, the Adams and people of that sort, put such delicate colours on their walls and ceilings but were content to put up with the everlasting brown of timber on their floors. Timber is a very good material, of course, from the scientific point of view, but as a decorative material it has its limitations.

Dr. Harper frequently mentioned the word 'appearance' in his lecture and it has also been mentioned in the discussion. He said that the three main considerations were appearance, cost and comfort, and I think that cost and comfort could easily be subordinated to appearance. No architect could or should be comfortable with a floor that looks bad, and cost also is related to appearance.

During the last two years I have had an opportunity of testing numerous floor finishes in a practical way at Scotland Yard with a particular type of user, namely, the policeman. He is a very hard user, and I have tested floor finishes in the police station and in the policeman's home. We find that we have an added difficulty. Dr. Harper has already said that there is some difficulty in assimilating laboratory tests to tests of actual performance. We find that when we put similar materials into similar places in similar buildings we get different results. We tried the pitch mastics, the mastic asphalts, the decorative tiles, the thermoplastic tiles and the other flooring materials, and we found that they all gave us a reasonable return for the amount paid for them, but we tried to discover why we got such varying results, and we came to the conclusion that it was due to the cleaning. I should say that ease of cleaning is one of the important qualities of flooring material, and we as architects should do something about it. I do not think it is any use saying to a tenant or a user: 'You must not use a polish which contains a solvent, turpentine or paraffin; you must buy a water-emulsified wax polish', because he does not know what we are talking about.

I think we should ask an institution like the Building Research Station to be a little less shy about giving us the precise names of polishes that are suitable for the different kinds of floors. That has been attempted to a certain extent in one Government publication, but we want it done for the whole ambit of the floors.

Mr. Denis Bowman [*A*]: Previous speakers seem to have done a good deal of research on floor finishes. I should like to say a word for those who know no more about floor finishes than they do about plumbing or any other branch of building. We are increasingly encouraged to catechize our clients on their habits, and I think it is very undesirable that we should have to ask them what is the coefficient of friction of their shoes. I think that most members of the profession who are non-specialists would prefer information of a rather more general character. In saying that, I am not disparaging in any way Dr. Harper's eminent scholarship or the value of his researches.

Mr. H. Hall [*A*]: I am very much concerned with the adaptation of old buildings for use very largely as children's homes, and I have two specific problems on which I should like to ask Dr. Harper's advice. One is in connection with the application of hygienic jointless floors on first floors, mostly wooden floors, where there may be problems of rot and of deflection. The second is the problem of nurseries on ground floors, in cases where there are wood block floors in rooms used largely by babies. I should like to know what treatment Dr. Harper would recommend for those floors, which the matron usually insists on being scrubbed, so as to be sure of their cleanliness.

Dr. F. C. Harper (in reply): The question of how to finish an old wooden floor depends, of course, on whether it is able to carry the load which you put on it. There are four main kinds of jointless material available which could be put on the wood. They would not all be equally satisfactory. They are pitch mastic, mastic asphalt, oxychloride, and the latex cement group of materials. Apart from the question of the floor flexing under the load, what has to be considered is the movement of the boards with changing moisture content. It is usually found necessary either to separate the jointless finish from the wood or to anchor it to the wood with reinforcement, to prevent it cracking when the boards move back and forth. The question of weight then arises. Probably the least heavy of these floors are the oxychloride and the latex cement, and they would appear to me to be the best to use on the wooden floor. Another method to adopt would be to put hardwood strips on top of it.

With regard to the question of the treatment of timber, I believe that experiments are being carried out at the moment on the application of cellulose to wood blocks. I do not know how successful they are. I do not see how anyone could discourage the matron from having the floors scrubbed.

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The Modern House in 1850 and 1950

A Parallel and a Contrast *

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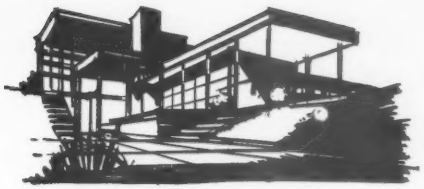


ALL HUMAN IMPROVEMENT is from within, outward—for history has proved that ideas are as contagious as diseases. What starts as a prick of conscience or the germ of an idea in the mind of a single individual—or, perhaps, simultaneously in the minds of a small group of men—if it is a good idea and an addition in the pattern of growth of human thinking, may eventually snowball into a great revolutionary social change, affecting the lives of millions of individuals and even the conduct of nations. Ideas in the ultimate are even stronger than the hydrogen bomb. It is, however, a matter of great surprise to us today, with our perhaps too-ready acceptance of the vast encyclopædic knowledge of the 20th century, how long it took people to arrive at certain, to us, most obvious, general conclusions. Whilst it is true that since the earliest times, the interrelationship of 'Health' and 'Housing' has always been, to some extent, realized, it was not until the early part of the 19th century in England that the integrated concept of 'Public Health and Housing' came to be formed in the minds of a few pioneers in social development. Indeed, almost half of the 19th century was to pass before the insistence of these pioneers that something must be done by the nation about public health and housing began to be listened to by the general public and the government.

Edwin Chadwick, whose name is honoured by the Trust which bears his name, played no small part in awakening the social conscience of the nation to the evils of the then existing insanitary housing conditions. The two reports which he drafted—the first dealing with conditions in London and the second of 1842 covering the condition of the labouring classes in the whole of Great Britain brought sharply into public focus the horrors which then existed. As a result of his influence and those of his colleagues in this pioneer field, the drive for building more and better houses for the working classes started in the '50's and '60's of last century, and has expanded and broadened in scope ever since. The burning zeal of Chadwick and his contemporaries, who stood for sanitary and housing reform, has spread contagiously from mind to mind, and from generation to generation, and, indeed, from this country to others, until today every thinking person accepts without question the fundamental tenets of their belief and admits that public health and housing are only two facets of one and the same great single social problem. Many of the ideas which they propagated have become concrete realities in these past one hundred years, and the full realization of their dreams can not now, surely, be long delayed. The names of Chadwick and his fellow leaders are really carved indelibly, for those who have eyes to see, on the plinth of every municipal house.

Social progress is very slow. It is not, moreover, always continuous. Forward steps are achieved only from time to time—some big, some little—so that it is only when social progress is reviewed over a reasonably long period that the advances made can be assessed. One hundred years is, it seems to me, a very satisfactory period for our purpose, particularly when the year from which we look back is the half-way mark of the 20th century. It is for this reason that I have selected the title of my lecture. Moreover, the hundred years' period coincides more or less with the length of the active partnership between the government and the local authorities in their attack upon bad housing conditions.

First let us paint the picture in 1850. Frederick Engels, in his book, *The Conditions of the Working-Class in England in* 1844, describes the horrifying conditions which he found, and I think that it would be helpful if I were to quote one or two relevant paragraphs. Dealing with the great towns, Engels writes: 'Every great city has one or more slums, where the working-class is crowded together. These slums are pretty equally arranged in all the great towns of England, the worst houses in the worst quarters of the towns; usually one- or two-storeyed cottages in long rows, perhaps with cellars used as dwellings, almost always irregularly built. . . . The streets are generally unpaved, rough, dirty, filled with vegetable and animal refuse, without sewers or gutters, but supplied with foul, stagnant pools instead. Moreover, ventilation is impeded by the bad confused method of building of the whole quarter, and since many human beings here live crowded into a small space, the atmosphere that prevails in these working-men's quarters may readily be imagined. . . .

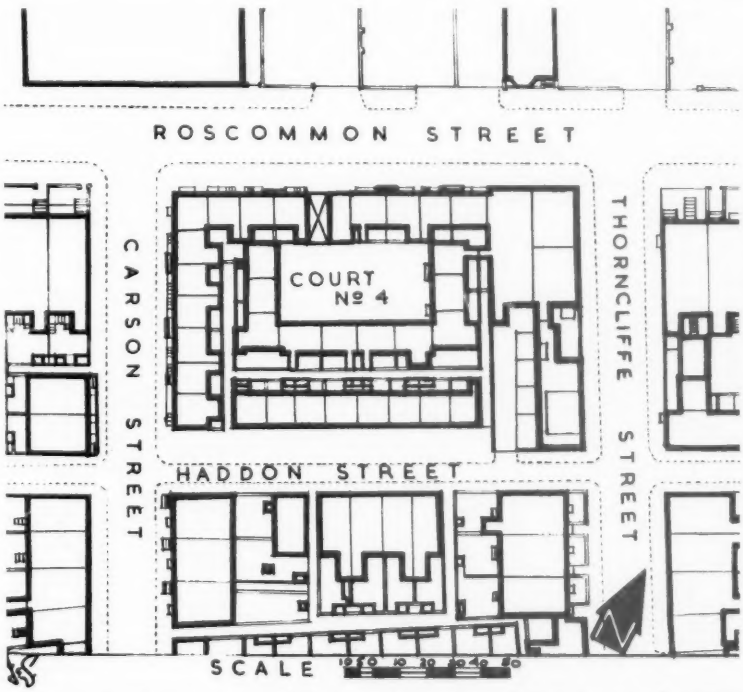


Fig. 1: An enclosed court; a very tight, congested and unsatisfactory type of development

* Condensed from the Bossom Gift Lecture for 1950 given under the auspices of the Chadwick Trust.

Fig. 2: An open-end court of the type described in detail. Built about 1849

Fig. 3: Back elevation of three-storey terrace houses with minimum yards and with narrow slit windows. Little better than back-to-back dwellings. Built about 1845

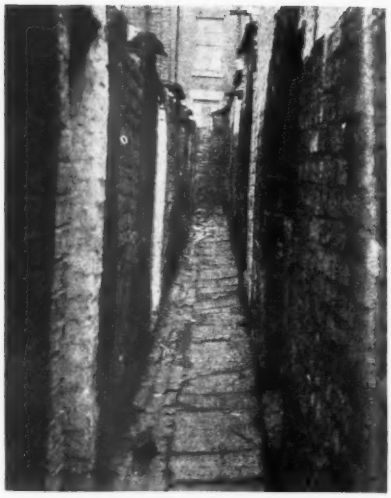


Fig. 4: Narrow back passage between three-storey terrace houses with minimum yards. Overall width of passage just about 3 ft.

But, in spite of all this, they who have some kind of a shelter are fortunate, fortunate in comparison with the utterly homeless. In London fifty thousand human beings get up every morning, not knowing where they are to lay their heads at night.'

Engels visited Liverpool in his tour, and places on record that, in his opinion, conditions there were no better than anywhere else. A full fifth of the population, more than 45,000 human beings, lived in narrow, dark, damp, badly ventilated cellar dwellings, of which there were over 7,800 in the city. Besides these cellar dwellings there were 2,270 courts—small spaces built up on all four sides and having only a single entrance, the latter a narrow covered passage-way. Such courts were the scene of indescribable squalor and filth, lacking as they did any form of piped drainage and having only one or two communal privies.

There is no reason to suppose that there had been any very material improvement in housing conditions in Liverpool or the other great cities during the ten years preceding 1850. In fact, on the whole, things had got worse, particularly in Liverpool, where tens of thousands of Irish immigrants added to the difficulties of the authorities by making the existing overcrowding so much worse. Some statistics giving the average age of decease for the various classes of the population in Liverpool in 1840 may, therefore, be of interest. During this year, 137 gentry and professional persons died at the average age of 35 years, 1,738 tradesmen or members of their families died at the average age of 22 years, whilst 5,597 labourers, mechanics and servants died during the year at the average age of 15. Of the deaths which occurred amongst the labouring classes, it appears that no less than 62 per cent of the total were deaths under 5 years of age, and even amongst those entered as shopkeepers and tradesmen no less than 50 per cent died before they attained a similar age. These facts show that the individuals born in the poorer parts of the city and in the meanest houses could only expect, on average, to live less than half as long as those more fortunate citizens who lived in the better parts of the city, and on a higher standard of living. I do not believe that mortality figures are kept today on a class basis, and this in itself is significant, and I think we can say with a high degree of certainty that the discrepancy which these figures of 1840 reveal can not be paralleled today. Whilst there is, and will continue to be a lower expectancy of life amongst the poorer classes until their housing conditions are further improved, the margin of difference is very much smaller owing to the great strides which have been made, not only by virtue of the availability of medical facilities, hospital services, unemployment insurance, public assistance and so on, but also because there have been very great improvements in the housing standards of the poorer classes, bad though we still consider them to be.

All the writers describing housing conditions in the City of Liverpool, and indeed elsewhere, around this time, stress the need for applying three essential and basic remedies. First, the provision of adequate drainage and sewerage facilities; second, the need for piped water supplies; and, third, adequate arrangements for street cleansing. They stress the fact that without proper drainage facilities, an adequate and easily accessible water supply and the removal of household waste, no improvement in the living conditions of the poorer classes could be hoped for.

Writer after writer stresses the filth lying about in courts, alleys, passage-ways and in the roads and paths surrounding the dwellings. Some describe the filth and squalor with such vividness that the stink of poverty somehow seems to linger on the printed pages of their books. Contrast these conditions with those of today. The passing of local building and sanitary bye-laws and the much more enlightened attitude of the general public towards these matters stand out as a really mighty and important achievement during the period which we are reviewing. Apart from very isolated and quite minor nuisances, which are more or less immediately dealt with, the smell of poverty is confined now to individual dwellings. There is no general noxious miasma in the slum areas as there must have been throughout the first three-quarters of the nineteenth century. Adequate drainage facilities, adequate water supply and proper arrangements for street cleansing and the collection of household waste have achieved wonders for which we should all be very thankful. Thus, we can say right away that, on the credit side, the air around our dwellings, whether they be old or new, is very much sweeter and more wholesome than it would have been if we had been living a hundred years ago.

Chadwick, in his report, makes reference to the psychological effect which foul air had upon the tenants of the poorer properties. He says: 'The close pent-up air in these abodes has, undoubtedly, a depressing effect on the nervous energies, and this again, with the uneducated, and indeed with many of the educated workpeople, has an effect on the moral habits by acting as a strong and often irresistible provocative in the use of fermented liquors and ardent spirits.'

Certainly, it is true that as a result of general social improvement, the incidence of drunkenness is not nearly so high now as it was a hundred years ago. It is also interesting to note how even the present incidence drops in the new housing areas. Of course, the adverse psychological effects of bad housing conditions around 1850 were not confined to excessive drinking. Squalor, filth and overcrowding are conducive to the spread of other vices, and the behaviour attributed to many of the residents of nineteenth century slumdom makes sad reading.

So much for the general picture. Let me turn now to the types of accommodation for the working-class which then existed. I have already made reference to the totally enclosed courts, approached through a covered passage, but fortunately in Liverpool they have all been pulled down, and I can find no adequate pictorial record. I have been able, however, to obtain a tracing of a typical layout on the 1848 Ordnance Survey (Fig. 1). You can see how tight and congested it must have been, and it does not need very much imagination to visualize what living conditions were like in a place such as this, lacking as it did any

drainage facilities and with a communal water supply, probably consisting of a pump in the centre of the court.

A slight improvement on this plan arrangement is provided by the open-end courts, many of which, unfortunately, still remain in the City today (Fig. 2). The dwellings are packed tightly together, back to back, so that there is no possibility of through ventilation being obtained. Normally, the dwellings surrounding such open-end courts were of three storeys.

Another typical layout is the row or terrace of two and three storey dwellings with minimum yards at the rear of each and a back alley only about 3 ft. wide separating them (Figs. 3 and 4). The peculiarity of these terraces is that there were normally no windows on the rear wall of the dwellings, although in certain cases you do find very small single windows, almost a port-hole type. Thus, such houses were in reality no better than back-to-back dwellings. Many hundreds of these still exist in Liverpool.

Another type of accommodation provided in the middle years of the nineteenth century were blocks of three-storey tenements with balcony access, and many of these are still occupied. Locally, these are referred to as Scotch Tenements (Fig. 5). There are, of course, also the normal bye-law terrace houses with back yards and lanes.

It has been difficult to ascertain the exact years in which many of the properties I have described were built. It seems clear, however, that apart from the enclosed courtyard type, properties along the lines of the other basic types were being built both immediately before and after 1850, so that for the purpose of my lecture we may regard them as being modern types so far as 1850 is concerned. I do know of some specific open-end type courts which were being built in 1849, and although the houses are three storeys high, we can perhaps use them as our basis of comparison with 1950 so far as cottages are concerned.

Speaking generally, the methods of construction adopted for domestic work in 1850 show very little difference from what we now call traditional construction, so far as the general structure of the buildings is concerned. It is perhaps worth while describing these dwellings since they were built within a year or so of 1850, and because their form and layout are typical of the period. The houses are built in courts, back to back, each containing eight houses and set, in fact, in pairs; there is an equal space between each pair which is exactly equal in width to the frontage of one house; so that presumably it was originally intended to have ten houses in each court, but a single site was, for some reason or other, left vacant at each side. All the houses are built of brick, the walls being 9 in. in thickness, and the bricks are set in lime mortar. The front doorway entrance has a semi-circular arch of purpose-made brick, and there is a four course stone plinth at ground-floor level. The heads over the window openings are also of stone, and there is a stone cornice at eaves level which also acts as a gutter, being lead-lined. There is no evidence of any damp-proof course. The ground floor, in all cases, is 2 ft. 3 in. above the flagging in the court, and each house, therefore, requires four steps at the front door. The underside of the ground floor was evidently at one time used for fuel storage, but this use appears to have been abandoned some considerable time ago.

Fig. 5: Three-storey 'Scotch type' tenements with balcony access. Built between 1840 and 1850

And now for the accommodation. Each house contains a living room and two bedrooms, each apartment being immediately above the others. All houses are equal in measurement, having a frontage of 12 ft. 6 in., giving a living room of just over 11 ft. × 10 ft. 10 in., with 8 ft. 6 in. headroom. The bedroom on the first floor, which is of similar size, has its headroom reduced by 6 in. to 8 ft., and similarly the bedroom on the top floor has its headroom further reduced with a slope to the ceiling of 6 in. at the eaves to 6 ft. 9 in. total headroom. A portion of each bedroom is taken up by the stairwell and small landing to allow a narrow space for mounting to the second storey and to shield the stair from the bedrooms. The staircase from the ground to first floor is of the usual type but is very steep, and contains four winders at the top. The staircase from the first to second floor, however, has 12 winders, and constitutes quite a complicated piece of joinery setting-out. All rooms are lighted by one window to the front elevation, although there are two smaller windows at each floor in the end elevation at the stairhead.

And now for a little more detail about the plan and amenities, or rather lack of amenities. All the courts, which are paved with York stone flags with a central channel to carry away surplus water, are 68 ft. long and 13 ft. wide. One water tap is placed centrally in the court to serve eight houses. A single ashbin, fixed at the entrance to the court, is the sole refuse receptacle for the tenants. The sanitary accommodation consists of four trough closets, sited at the end of the court—one to two families—and these are emptied daily by the local authority. The courts are lighted by one gas lamp, which suffers from the missiles fired at it by the myriads of children who somehow live in this area. None of the houses has any form of

Fig. 6: Every bit of land within easy walking distance of docks and riverside industry was developed for housing at as high a density as possible. By modern standards the results were appalling—lacking the essentials of light and fresh air now considered mandatory in all new schemes

modern artificial lighting, candles or paraffin oil lamps being the only source of internal illumination.

That is the general picture of the kind of accommodation which must have been regarded as being the very latest and the most modern type of working-class accommodation when it was built, although it is difficult to imagine the sense of awe and wonder which the first tenants must have experienced when they were allocated these dwellings, in the light of the improvements which have taken place in the last hundred years. Considering, however, the time that they have been tenanted and the way they have stood up to the job despite little or no maintenance in the last decade, one must agree that they were originally well-built and stand as evidence of the fact that brick and mortar construction, if it is well-built initially, does provide a satisfactory standard of habitability.

Only a detailed investigation of properties such as this can bring home to one the importance of the improvements which the march of time has engendered. It is not then in the methods of construction that properties such as those described fall so far short of our modern standards; although, of course, as we must realize from my brief description, there have been considerable improvements in structural technique since they were built. It is really by virtue of their original design-conception that dwellings such as these now fall so far short of modern requirements.

One can not, of course, criticize the fact that they did not have electric light, sinks and running water or water closets and baths because such things were still innovations at the time. Recently I had the privilege of visiting The White House in Washington, which is at present undergoing reconstruction, and I learned that it was

not provided with gas-light until 1848. Up to 1833 the President had to use a tin bath-tub supplied by buckets of water. Only in that year were pipes installed to bring water into The White House from a nearby spring. The first regular bath-tub, a mahogany box lead-lined affair, was not introduced into the United States until 1842, but this novelty never achieved much favour until President Fillmore had one installed in The White House in 1850, whereupon they soon acquired popularity.

If the then-Presidents of the U.S.A. had to put up with such primitive amenities, it is not reasonable to suggest that such things ought to have been installed as a matter of routine into the homes of English working-class families. No, the truth is that sanitary arrangements were primitive and fittings non-existent, even in the homes of much more prosperous families. Statements such as these reveal again the tremendous progress which has been made in these last hundred years. Electric light, gas or electric cookers, sinks, wash-basins with an ample supply of both hot and cold water, as well as baths and water closets, are standard equipment in every new house built today.

We have seen then that whilst the working-class dwellings built about 1850 were reasonably soundly constructed, they have three major deficiencies. First: they were cramped in their internal planning and lacked sufficient floor area and apartments for big families. Secondly: they lacked the majority of the amenities we now regard as absolute essentials: and thirdly the basic conception in layout was poor and inadequate by our contemporary standards. I have dealt already with the first two deficiencies, but I would like to consider a little more fully the third—namely, layout. We must, however, in fairness to our predecessors, consider this question against the background of circumstances as they then existed. I, personally, deplore the unthinking criticism of so many of our long-haired planners about the achievements of our forefathers. It is easy for us in 1950 to say what should have been done in 1850, but I venture to suggest that if many of these critics had been living in 1850 they might not have done nearly as well as did the architects and builders of those times. I think, too, there is a tendency to decry too much the great contribution which the industrialists, the builders and architects of those times made to the story of civilization. What breath-taking accomplishments they achieved during the great days of Britain's industrial revolution. Of course, they made mistakes, for a man who never makes mistakes never makes anything!

But, to get back to housing layouts; we must remember that there were no trams or 'buses, or even bicycles. Hours of working were long, the general standard of living was lower than it is today, and it is easy, when we recollect all these things, to see why the growth pattern of our great industrial centres was so congested. It was essential for the workers to live near to the shipyards, the docks and the great warehouses of Liverpool. If the population had been moved out further into the countryside,

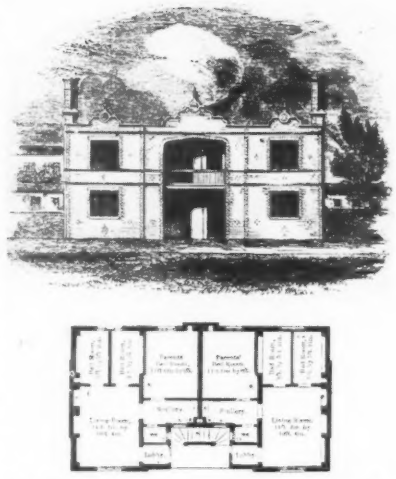


Fig. 7: Model houses for four families. Designed by the Prince Consort 1851

it would have been physically impossible for them to have been employed in the riverside industrial belt. Consequently, every bit of land within easy walking distance was developed for housing, at as high a density as possible; thus leading to high population density in the older and now worn-out parts of our cities (Fig. 6). There were practical reasons for such congestion which many people today conveniently forget. It is clear that circumstances compelled tight and high density developments in the inner central areas and that the patterns of planning with which I have dealt were, in the circumstances, the most reasonable compromises which could be effected. Nevertheless, by modern standards, we must agree that they are appalling—lacking the essentials of light and fresh air now considered mandatory in all new schemes.

So much for the general 1850 picture. It was a period of rapid growth, with congestion as the almost inevitable price to be paid. Today, we can plan on a much broader and freer basis, for the new factor of rapid surface-transport means that workers can live further from their places of work, although, of course, even now we must do our best to minimize travelling time. The best solution is to take a proportion of the industry out with the workers, and in this regard Liverpool has been a pioneer city, for long before special and redevelopment areas were thought of, with their trading estates, the city, under a special Act in 1926, had acquired powers to build and develop its own industrial estates, and already possesses three such, at Fazakerley, Speke and Kirkby, each of which is associated with substantial municipal housing developments.

And now what about the modern house of 1950? There is, perhaps, not so much need to deal with it in detail because most of you are familiar with the aims, methods and standards of the contemporary housing drive. As you are no doubt aware also, the standards are set for local authorities by the government. The Central Housing Advisory Committee and the officials of the Ministry of Health, and indeed many others, have given a very great deal of thought to the design, the construction and the planning of the modern working-class housing estates. The designers' bible is really the 1949 Housing Manual, published by the Ministry of Health, and even a cursory examination of the titles of the various sections included in the manual reveal clearly enough how much more enlightened is the approach to housing today than it was a hundred years ago. Consider, for a moment, some of the chapter headings and sub-headings of the manual, and you will see what I mean. The first section deals with Housing and Site Planning, Selection of Sites, Open Spaces, Shops, Methods of Control and Standards of Density, and similar associated matters. This list alone indicates the much broader approach to housing nowadays. No longer are we thinking in terms of individual houses or small courts and alleys, but the whole emphasis is on neighbourhood and community unit planning, thinking of the individual houses only as elements although, of course, essential elements in the overall neighbourhood pattern.

The very fact that a manual of this kind can be published as a yardstick for designers shows what a long way we have come since 1850. The omissions from the list of chapter headings and sub-headings are perhaps even more revealing than those that are included, for there is no mention of the need for adequate drains and sewerage systems, for paths and proper roads, and for adequate cleansing arrangements. It is assumed that all these will be automatically provided.

I have already dealt in some detail with a typical 1850 dwelling. Let me now, both as a parallel and a contrast, describe an average 1950 cottage type corporation house. So far as siting is concerned, it will either be semi-detached or in a terrace. It will have its own garden—it will be spaced a minimum of 70 ft. away from the house at the other side of the road or the house backing on to it—thus permitting plenty of air and sunshine to reach it. It will be served by concrete or tarmac roads, with proper foot-paths, and, in the better examples, with tree-lined grass verges. It will have adequate paths leading from the road to the front and the back doors, and the dwelling will be sited in such a way as to form, with its neighbours, a pleasant and attractive street picture.

So far, the main difference from the 1850 examples lies in the more enlightened arrangement, the proper drainage, and the provision of adequate roads and paths. Apart from the use of the cavity wall and the damp-proof course, the remainder of the technique of construction used in the carcass approximates very closely to what was being done one hundred years ago, although, of course, there are minor differences in the joinery technique, and reinforced concrete lintels have taken the place of wooden lintels.

Of course, the contemporary housing programme in Liverpool embraces a wide

range of types of dwellings, from flats, both large and small, through the normal cottage types of two, three and four bedrooms, down to the small one-bedroomed accommodation for single persons and aged couples.

So much for the normal 1950 council house—an improvement in every way, not only on the earlier types of dwelling described in this lecture, but also compared with the houses built immediately before the last war.

I have deemed it advisable to keep to the ordinary type of modern house now being built, and to compare it with the normal type built, particularly in Liverpool, one hundred years ago. At each date, of course, what we may call, for want of a better term, 'ultra-modern' houses were being built. At all times there are pioneers developing new techniques of design and construction, but when one is stock-taking, as I am attempting to do, it is better to take the average in each case rather than extremes. In 1851, for the Great Exhibition, some workmen's dwellings were built to the design of the Prince Consort (Fig. 7), and these were, no doubt, well in advance, as exhibition houses have a habit of being, of what was generally being designed at that time. Similarly, one can find today up and down the country, examples of very modern houses which may point the way to where we are going next, but this raises points which I consider are somewhat outside the present orbit.

We have nothing to be ashamed of so far as progress since 1851 in housing design is concerned. We have made tremendous steps forward of which we, as a nation, should be very proud. No longer do we pack houses together as closely as possible and more or less willy-nilly on to every acre of all available sites. We consider the house, not only in relation to the general amenities of the neighbourhood in which it is being built, but also as a single element in the build-up of the street-picture. We have fixed high standards, not only for the siting of our new dwellings, but for the methods of construction, sizes of apartments and the amenities to be provided within the dwelling. All-in-all, housing is much better done today than it was a hundred years ago, and if we can settle by peaceful means the international problems which at present face us, there is no reason why the evolutionary improvement of housing should not continue during the next hundred years even more rapidly than it has done in the last, for we have at our disposal a whole range of social and scientific techniques undreamed of a hundred years ago.

The social consciousness of the nation is, at last, fully alive to the social significance of housing and health, and if we continue to attack the twin problems with the faith, energy and tolerance which have been, and I believe still are, the great characteristics of our nation, we shall be following in the footsteps, and continuing the great work of Edwin Chadwick and his fellow pioneers in housing reform of a hundred years ago.

Review of Construction and Materials

This section gives technical and general information. The following bodies deal with specialized branches of research and will willingly answer inquiries.
The Director, The Building Research Station, Garston, near Watford, Herts.
Telephone: Garston 2246.
The Officer-in-charge, The Building Research Station Scottish Laboratory, Thorntonhall, near Glasgow.
Telephone: Busby 1171.
The Director, The Forest Products Research Laboratory, Princes Risborough, Bucks.
Telephone: Princes Risborough 101.
The Director, The British Standards Institution, 28 *Victoria Street, Westminster, S.W.*1.
Telephone: Abbey 3333.
The Director, The Building Centre, 9 *Conduit Street, W.*1. *Telephone: Mayfair* 8641-46.
The Director, The Scottish Building Centre, 425-7 *Sauchiehall Street, Glasgow, C.*2.
Telephone: Douglas 0372.

Illuminated Signs. An interesting book could be written on 'Signs of the Times', not in the usually understood meaning of the phrase, but as a description of the improvements that have been made in the lettering and general character of the signs that guide our ways when we are looking for our destination. The aim of such signs should be that they are legible and easily read at a distance, and experiments have been made to find out if black letters on a white background are more easily read than white on black, or whether yellow shows up better.

Illuminated signs have usually employed glass as a background but now perspex is being used, and this material offers artistic possibilities that will go far to make signs attractive, distinct and distinctive. The latest development is to engrave or carve the perspex from the back and then to fill the incisions with pigment. The inscription or design can actually be carved, like a cameo in reverse, and—in the case, say, of armorial bearings—the different surfaces can be tinted to the required colourings, so that when the engraved panel is lighted by strip lighting above and below, the design stands out as if it were carved in relief. The JOURNAL has been shown an example of an armorial panel, and the effect was very good indeed. It was made by Messrs. Drakard and Humble, of 5 St. Pancras Station, Euston Road, London, N.W.1, who call their products 'reverse-engraved perspex signs'.

Furniture Development Council. The Technical Information Service of the F.D.C. have published the first issue of their Technical Bulletin, which has for its object the inclusion in one document of references to all current technical and scientific information affecting furniture manufacture. After referring to the many publications that from time to time give descriptions of new machinery, processes or products, the Editor writes: 'No single individual could possibly read all these publications even if he had nothing else to do, but it is hoped that a small staff will be able to select the items of major interest to the industry and prepare brief summaries which will enable everyone to keep in touch with current progress.' Architects will heartily agree with those words, and the many who are interested in furniture will welcome this bulletin, as its abstracts give at least an indication of what publications would, or would not, repay reading from the architectural point of view.

Road Research. An architect needs to know something about so many things that another one on the list will not make much difference, and so architects concerned with the lay-out of estates may with advantage buy a copy of *Road Research*, being Road Note No. 5 (second edition), produced by the Road Research Laboratory of the D.S.I.R. (H.M.S.O. Code No. 47-141-5-50. 1*s.* 6*d.* net). The Note deals with types of road surfacing and maintenance using tar or asphaltic bitumen, and states that it is intended for the non-specialist. The photographs should help in the recognition of certain road surfaces, and the notes on construction will enable an architect to make a fair attempt at writing a specification for a road, if necessary.

A Flooring Centre. When considering the finishings of a building it is useful to be able to see and compare the possible alternatives without having to visit several showrooms; in the matter of floor finishes this can now be done by going to the Flooring Centre, opened last month in the Quadrant Arcade, Regent Street, London. There Messrs. R. G. Dixon and Co., Ltd. have laid down some 60 different examples of flooring, contributed by 48 floor manufacturing companies, and further examples will be added in the future. The maintenance of a floor is an important point, but in this matter some of the printed recommendations do not have the clarity one would desire, and the user is not sure which preparation he should use for his particular floor. At the Flooring Centre maintenance experts are in attendance to give advice on this point. The exhibits at the Centre include hardwood, cork, rubber, linoleum, tiles, jointless, plastic, terrazzo, granolithic, and leather floorings. From these it should be possible to select a type that will suit the character of the building and the pocket of the client.

Electric Lifts. An electric lift is definitely one of the items of equipment in a building that an architect would not attempt to specify in detail himself, and when he studies the specifications received from lift manufacturers he may find they contain a good many terms of a lift-technical nature not too easy to follow. Messrs. Marryat and Scott, Ltd., have brought out a brochure intended to assist architects and others to appreciate lift specifications, and to give advice on the preparation of an inquiry for a lift. Clear and captioned illustrations show the various parts of the lift, with its intricate mechanism, and mention is made of a 'slide rule' which gives instantly most of the information needed for the preparation of drawings at the sketch stage. Copies of the brochure are available free of charge to practising architects, on application to the firm at Wellington Works, Wellington Road South, Hounslow, Middlesex.

National Building Studies. *Bulletin No.* 12. *Plant for prestressing concrete.* Description of methods and appliances used in pre-tensioning and post-tensioning concrete. The Bulletin is mainly for the benefit of manufacturers. H.M.S.O., price 1*s.* 3*d.* net.
Technical Paper No. 9. *Test walls for assessing construction times with new building blocks.* In Technical Paper No. 1 an account was given of studies made on the relative expenditure of work in the laying of building blocks of various sizes and weights, as ascertained from the erection of a group of ten pairs of semi-detached houses. But as this took six months and involved about a quarter of a million readings it was obvious that it was not a suitable method for the routine examination of the many new types of building blocks that are produced from time to time. Therefore a sample wall was designed which contained all the principal constructional features of the walls of a full-scale house of the local authority type, and as far as possible in the same proportions, though it was only a fraction of the volume. The test wall represented 18 ft. of front wall, with a window, air brick and pipe sleeve; 7 ft. 6 in. of return wall, and 6 ft. 9 in. of party wall. The Paper gives results using several types of walling. H.M.S.O., price 9*d.* net.

Special Report No. 18. *Productivity in house-building.* This Report gives the result of a pilot survey carried out in the south, east, and west of England, and in South Wales. Study was restricted to a limited number of contracts for the erection of three-bedroom houses of traditional construction for local authorities on contractors' sites ranging from 2 to 80 houses. The mid-dates of the contracts covered the period August 1947 to October 1948; thus the effect was observed of incentive schemes agreed in November 1947. Rough checks made on each site gave no support to the suggestion that incentive payments are associated with inferior workmanship. For each £5 spent on bonus there was a net average saving of £5 in total cost over and above the bonus paid. Each additional ten houses on a site were found to reduce man-hours by 2½ per cent, labour costs by 2½ per cent—or about £10 on the standard house—and total costs by £12 10*s.* 0*d.*

British Standards recently published. B.S. 1709 : 1951. *Nomenclature of drawing instruments.* From information received by the British Standards Institution it appeared that some misunderstanding existed about the terms applied to drawing instruments, and it was agreed that a useful purpose would be served by preparing a British Standard setting out their nomenclature. Drawing instruments are defined as those usually contained in a set or case, and the term does not include such items as scales, set squares and protractors, as these are more correctly named 'drawing office equipment'. Price 2*s.* net, post free.
B.S. 810 : 1950. *Sheet linoleum and cork carpet.* This revised British Standard covers sheet linoleum of plain, marble, moire and jaspe finishes, and the Taylor and Walton types of cork carpet. The width and length of rolls, materials of the mix, methods of sampling, and tests are given. Price 2*s.* net, post free.
B.S. 11-22 : 1950. *School furniture.* This is the fourth volume of the special series of British Standards for school equipment that have been prepared in the light of recommendations of the Schools Committee set up jointly by the Ministries of Education and Works. The equipment dealt with includes (BS/MOE 11) desks, tables and chairs; (12) chalkboards and easels; (13) cupboards and shelving; (14) book lockers; (15) nesting chairs for halls; (16) medical room furniture; (17) art room furniture; (18) handicraft room furniture; (19) housecraft and needlework room furniture; (20) science room furniture; (21) geography room furniture; and BS/MOE 22, rest beds.

Codes of Practice recently published. C.P. 407: 301 (1950). *Hand-power lifts for passengers, goods and service.* This Code deals with hand-power lifts where conditions do not justify the capital cost and running expense of a power-driven lift. The design recommendations deal largely with the choice of lift, the number and location of lifts, machine rooms, structural requirements, imposed loads, quietness of operation, and fire protection. Obtainable from the British Standards Institution, 24-28 Victoria Street, London, S.W.1, price 3*s.*, post free.

Correspondence

ARCHITECTURAL DRAUGHTSMEN

Sir,—Though prevented by infirmity from hearing Mr. Goodhart-Rendel's charming paper, I have greatly enjoyed it in your columns. It was my privilege to know F. L. Griggs at Campden, and he surely was among the finest and most unaffected delineators of architecture: he made some really lovely drawings of designs by Walter Brierley.

Two other prominent draughtsmen I was privileged to know and work with escaped mention—Charles Gascoyne and T. Frank Green. The poetic water-colours illustrating G. F. Bodley's churches which Gascoyne yearly produced for the R.A. may not appeal to Mr. Goodhart-Rendel, but the honest and skilful perspectives of Green surely must? An example recently appeared as your cover picture. For years I was Green's 'setter-up' from the drawings of Ernest Newton, H. T. Hare and others, and it may be worth mention that the faithful pencil outline was submitted to the architect before Green worked on it, and sometimes induced modification of detail in the original design; surely the proper use of perspective.—Yours faithfully,

EDWIN GUNN [*Ret. A*]

A copy of Mr. Gunn's letter was sent to Mr. Goodhart-Rendel, who has replied as follows:—

In preparing my paper I had to set myself a limit of date, and the drawings of Frederick Griggs, Charles Gascoyne and Frank Green belong properly to a slightly later period than that of which I wrote. Both Griggs and Gascoyne were my friends and drew a great deal for me, and I found it very difficult not to refer to their work as surpassing in excellence much of that which I included. Nevertheless, I felt that I must adhere absolutely to my determination to deal as fully as possible with a particular length of history without confusing my hearers by forward glances.

SPACE TIME AND ARCHITECTURE

Sir,—Miss Tyrhwitt's review of the latest edition of Mr. Gideon's work seems to ignore the constituent fact of the flaw in Mr. Gideon's method.

In the introduction he explains that Burkhardt 'showed how a period should be treated in its entirety', but a few pages later states 'we prefer to deal with fewer events . . . in close-up view, a few facts seen clearly enough may lead to a knowledge of something more than the fact themselves'.

This selective method has the grave danger of taking an isolated example from its context, and the full importance of the fact may be lost in the magnification of one aspect of it.

The example of San Carlo all Quattro Fontane, a favourite 'constituent fact,' is interesting. 'The undulating wall is the natural accompaniment to the flowing spaces of the flexible ground plan.' This is later compared with Lansdowne Crescent, Bath, where the ground plan of the individual houses is far from flexible and the undulation of the general plan form is probably the solution of a problem of mean levels across an uneven site rather than the result of concern with 'organic outline'.

Mr. Gideon's method is interesting in the light it may throw on certain limited aspects of architecture, but the sharp focus on isolated facts should not blind us to the more general view.—Yours faithfully,

HENRY J. MEIN [*A*]

Clarity in Town Planning

By J. J. P. Oud

Honorary Corresponding Member, the Netherlands

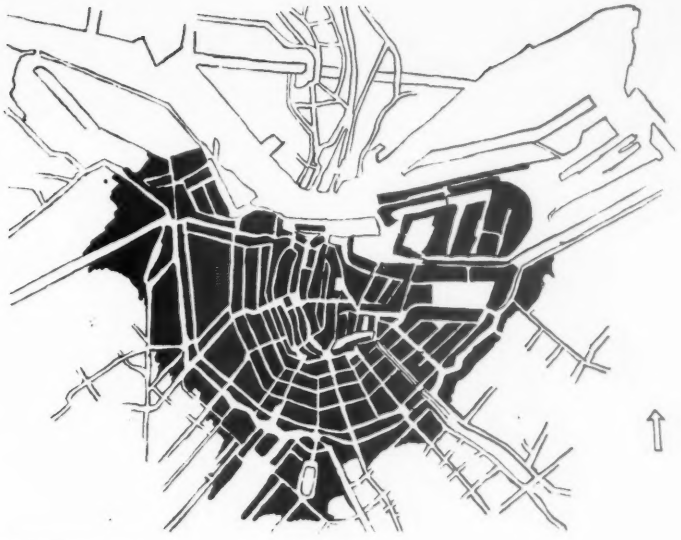
THE MORE PEOPLE live in crowds, the more they feel the need for space. The phenomenon of human beings crowding together in towns—urged thereto by the appeal of urban life and the growth of population—resulted eventually in a reaction towards garden suburbs, satellite and dormitory towns. The consequent horizontal expansion brought about traffic difficulties, particularly congestion of existing roads and streets. This is now leading in turn towards the development of high buildings for dwellings, five, ten, or even more storeys in height, in an effort to simplify traffic and to provide more space at ground level for recreation.

It is true that this movement can lead to a reduction in traffic density, but as a solution of the problem of providing living space, it can not be considered beautiful from a biological point of view. There is evidence that man loses vital strength from loss of contact with the ground; his fecundity decreases; his children, becoming fewer in numbers, are handicapped in obtaining that liberty of action that is so necessary to the proper development of young life.

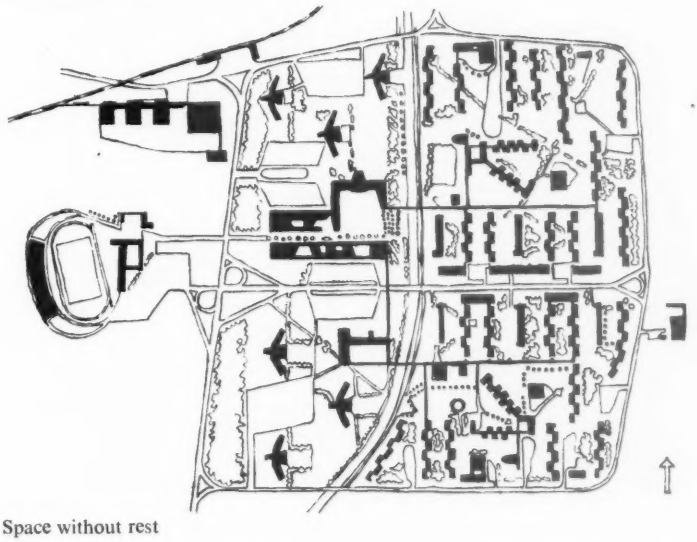
The type of dwelling provided in high buildings is more suited to the life of a bachelor than to family life. It is true that claims are made for dwellings at high levels as giving purer air and wider views, but these are abstract benefits compared with the real benefits of fresh country air and contact with nature such as are obtained properly by rural dwellers and, to some extent, by residents in garden suburbs. For these reasons I advocate the restriction of high dwellings to three or four storeys at most for as long as we are able to do this.

However, in view of the present-day acute problems of redevelopment and extension of existing towns, it may be impossible to avoid occasionally very high blocks of dwellings. A certain percentage of them seems unavoidable in practically every town plan. These blocks are, however, strongly dominant—dominant in a physical sense but not spiritually. They form such important components in town plans that they need intense consideration from the very beginning, the more so because they are the most characteristic consequences of the new thought in town planning, namely, the wish to create 'space'.

It is true that only by using widely the principle of the tall dwelling block can we succeed at present in obtaining town plans which appear to be roomy and to give pleasant town views. But we should not allow ourselves to overrate such results from a *town-architecture* point of view. These tall blocks are the consequence of a development which, by its nature, is purely material in character—a development that lacks entirely, for the time being, that spiritual character which makes town planning a cultural force.



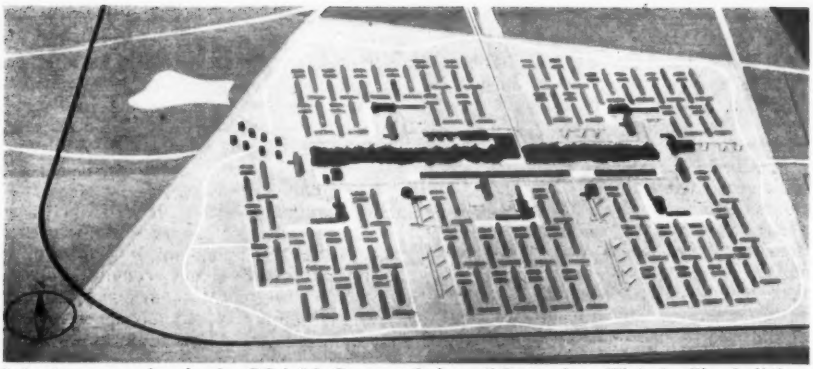
Rest without space



Space without rest

In this respect—as in many others—it is in flat contradiction to the academic, closed town-view type of plan which was familiar to us until recently. This now obsolete type of plan certainly took material requirements into account, but the overriding desire was to effect an engaging succession of built-round spaces which here and there opened themselves towards special resting points for the eye. The street or square was designed as an element in itself—as something to be looked at. There was certainly plenty of care for architecture! This was deemed essential. This point of view was expressed by Sitte's town architectural views, which had great influence some decades ago. Town planning was considered to be art; no science!

The movement away from a purely architectonic approach towards functionalism in architecture itself was extended to town planning. The dominant considerations became ease of traffic flow, the demands of utility, light and air, the need for recreation and hygiene. The desire to have an organic cohesion in the human community as well as in the town plan also became a basis of the new town plan. Moreover attempts to study living—or rather the technique of living—led inevitably to an excessively matter-of-fact character in town planning. All these were factors by which town planning was subjected to a thorough mental cleaning.



Suburban town planning by C.I.A.M. Group. "Opbouw" Rotterdam. High dwelling buildings situated without disproportionate importance

At first this gave unprecedented advantages. In course of time, however, some drawbacks appeared. For instance, if functional processes were to be employed without other considerations, towns and villages could arise with visual effects of so depressing a neutrality and monotony that they could not but be wearying and bewildering. Just as with functional architecture, harmonic composition, beautiful proportion and handsome shape were worsted in the beginning by a belief in practical usefulness and the illusion of natural and spiritual liberty; so in town planning true architectonic values fell into the background far behind the conception of utility. Nothing demonstrates this more clearly than those many published plans in which long, high blocks of dwellings march like a new Great Wall of China across the scenery without any kind of reverence for it. These plans were (and are) of excellent, rational design but absolutely anti-architectonic because they lack any devotion to town architecture. Emotional vision—architecture—was replaced by well thought-out studies and surveys. Town planning became science: no art!

Considered against the whole evolutionary trend of the times, this development is logical and can not be avoided. Nevertheless, now that the danger is no longer hypothetical, and the normal process of town growth is tending to stiffen because of a rigidly dogmatic conception, it is necessary to apply a corrective.

Most town plans of today have a character that depends too much on pure reason. They lack that real vitality which can be provided only by architecture. Therefore they fail in *clarity*. In striving after the ideals of open spaces, room, light and air—characteristic of functional design—their designers have achieved no more than widely extended blocks of buildings, strips of housing and occasional tall structures scattered profusely through the plans. All this has been against a background of recreation fields, green zones and sheets of water for which vast areas of land have been reserved. (Those who can read such plans ought to suffer from agoraphobia.) It is true that there is usually a certain basis of arrangement, but this is either purely matter-of-fact or playful-romantic and not, as it should be, a purposeful connecting of village-views or town-views by means of the contrasts of emphasis and inconspicuousness, of value and counter-value, of form and contrasting form. The values of the component parts are too much at the same spiritual level. The shed, the house, the factory, the town hall, the church differ in their dimensions but not in their intrinsic significance, which must lie in the symbolism of their architecture. This symbolism of architecture ought to dominate the plan of the town and its visual aspect, turning it from a mere built-over environment of business-like well-arranged masses of material into a cultural centre for a society striving after ideals.

No comparison goes on all fours, but typography will serve well enough as an illustration. Not so long ago it was all the fashion to use small type (lower case) without initial capital letters. This fashion set in impetuously, but died silently for reasons not difficult to understand. Its originators thought that by using small type they were being matter-of-fact and efficient, but experience soon showed that the uniformity so achieved was highly prejudicial to clarity. It was then realized that initial capital letters are more than mere ornament and that, first and foremost, they are practical resting points for the moving eye; also, they give accent to punctuation. They are marks facilitating reading and making it agreeable—something like the word 'stop' in a telegram. They announce a new subject, or at any rate they separate the preceding from the following in such a way that the contents of the printed matter appeal more clearly to the reader. Even the fact—so frequently denounced—that capital letters have a character different from that of the small type helps to promote clarity. In town planning today there is a surplus of small type! It is irritating; one feels that the capital letters are lacking.

Today people speak of the 'devaluation of the symbol', forgetting that the symbol often has much more significance than that of a mere emblem. In building, the symbol we know as 'architecture' has a much wider meaning in being a clarification of intention, purpose and shape. For this reason we may anticipate that, just as with the capital letters, the symbol of architecture will again emerge, or that it will jump out like a jack-in-the-box, alive and well.

It can not be repeated too often that his clarity of intention can not be obtained by purity of functional purpose alone. It depends indeed on the expression of architecture. If we want to give life to the new 'open' town design we shall also have to discover, on the basis of functional purposes, a new means of expression of architecture in its complete variety.

This architectural expression can never be found in its truest form in the high blocks of dwellings which, owing to their solid masses, behave so obtrusively in the new town plans. Their inner significance, their spiritual place in the social organism, does not warrant their becoming important resting points for the eye in the overall visual effect of the town. They should not be regarded as capital letters (to return to the analogy of the printed document); at best they are no more than lower case type greatly enlarged.

In actual fact these tall dwelling blocks make very difficult a true architectural expression of the urban scene; they confuse the issues. If they catch the eye too much their social importance is over-emphasized, whereas truly their social value is a neutral one. Therefore the less they are designed to dominate, the more their true significance is expressed. For this and other reasons we shall have to make a far more thorough study than heretofore of the purpose and place of these large dwelling blocks. At present they are handled far too thoughtlessly and too capriciously. This is fatal to clarity in the urban scene.

Points which need thorough examination are the annoying air current effects which these great blocks create in their vicinity, the orientation of their long and short sides and their gigantic shadows. Moreover, the concentration in one area of a single social class has consequences which require more attention. Other points will doubtless arise. Clearly, however, these buildings can not be dotted over a plot of ground like cottages.

Considering only the shadow problem, we might ask whether it might not be desirable to group them as much as possible in one area, for example on the north side of a plan. Architectonically this would be of great advantage. Such grouping would tend to deprive them of the exaggerated value that their large dimensions at present give them individually. Like a sort of San Gimignano they could form a group of gigantic buildings which, because they appear as a group, do not spiritually dominate the whole urban scene. If placed individually they give a wrong emphasis in the spiritual sense and destroy the higher harmony and clarity of the town. Perhaps we must consider the broad grouping together in the whole of a town plan of fairly equal building-elements. In this way—as with the grouping of flowers, shrubs and trees in the borders of gardens—the greatest amount of rest and clarity is obtained. This tendency is to be observed—more or less—in "Broadacres City" by Frank Lloyd Wright. It gives a pleasant stability.

For the sake of clarity in our new town

plans it is also essential that we admit with conviction the difference between outer size and inner dignity. If we are so convinced we will often express a building of small dimensions as a symbol that makes an important and deep outward impression. If we want to attain, besides the material advantage of the 'open' town plan, one that is spiritually convincing we should work with such expressive values as can only be supplied by the symbolic in building, namely, architecture.

Then we shall have to agree about the relative values of the different open spaces in the town plan; for example, that the large recreation ground is negligible in spiritual value compared with the little square in front of the town hall. Such symbolic values are the only ones that can save us from that superficiality from which so many new town plans are at present suffering. Architecture was thrown overboard—at first with the best intentions—but she has to be picked up again.

That this has not yet happened is due to the fact that many architects are suffering from a kind of constraining neurosis, as if architecture were to result in a stiffening of function. This indeed was the case under the rule of academicism; then, because it had precedence over function, shape was the natural foe of life. It is quite a different thing, however, to lift up a form purely born of utility so that it becomes beautiful at the same time. When this is done, utility will have to undergo some degree of sacrifice, but this will be only slight and will be perfectly accounted for because spiritual enjoyment is also a function of man. Spiritual enjoyment is entitled fully to its place in town planning not merely because it is a form of pleasure but because it brings clarity to the town plan as well.

If we want to infuse the new town planning with real life we must consider spiritual values. The town planning body has many diverse aspects in its composition; it is an organism in which many organs of low and high order are interlocked. These organs will only reproduce the nuances of daily life correctly if they are expressed differentially. This differentiation is one of moral character; it is not based on outward power but on the necessity for inner harmony. In a democratic community it will be perfectly in its element. Only the conjunction of this spiritual differentiation in a higher unity will give order and repose in town planning. It is a *sine qua non* to 'strike an attitude' in a plan.

Therefore the attainment of clarity in an urban project will not only require that purpose be clearly visualized and survey work exact, but also that the creator of the whole conception has more than a mere scientific outlook. As a town planning architect he must have the courage, while being to some extent heedless of analytical findings, to create a synthesis which will make the spacious and practical town a clear and beautiful town as well.

Editor's note: This article was originally published in April 1949 in an abbreviated form in *Housing and Town and Country Planning* Bulletin No. 2 of the United Nations.

Book Reviews

Recollections of Thomas Graham Jackson . . . 1835-1924, arranged and ed. by *Basil H. Jackson* [*F*]. 8½ in. xiv + 284 pp. + xxiv pls. text illus. O.U.P. (Lond.). 1950. £1 5*s*.

These recollections written in spare moments by Sir Thomas Jackson and edited by his architect son, Mr. Basil H. Jackson, might be considered by some to have a somewhat limited appeal today; it should, therefore, be said at once that the book has an architectural and historical interest which should attract a wide public, and especially architects. Indeed, it would be surprising if the reader at the end did not feel that it had been a privilege to share, in some small measure, the life of a 'learned, versatile and lovable man', words used when Sir Thomas received his Hon. D.C.L. degree in Oxford.

The early part of his life as an architect conjures up the period of Bodley and Alfred Waterhouse, of Morris and Philip Webb and the Pre-Raphaelites, revealing him as a man slowly but surely becoming devoted to his art and cherishing his calling as architect, artist and craftsman.

If there was no great originality in his work, it must be remembered that his age had not as a whole become emancipated, but he realized the narrowness of the outlook of the Gothic revivalists, and broke away from the fervour of this style, which was at full blast when he entered Scott's office. Coming back from Italy in 1865 he was 'cured' as he said 'of mediaevalism', adding the significant words: 'No style that has lived and died has ever been made to live again'. And so we see him developing a form of Jacobean architecture personal to himself, but more Gothic than Classic. His was an age so near to us in measurable time and yet in this post-war world so far away; an age still receptive to physical and spiritual inheritance with fine craftsmanship as an integral part of design.

Again and again he is revealed to us as a man of high ability, ideals and versatility in the field of human and architectural endeavour. No mean scholar, a keen traveller, with a talent for painting, he was author, architect, designer of furniture, fabrics, table glass for Powells, embroidery, Church plate, stained glass, with an architectural output which is truly amazing. We are not concerned with where he stands today, but with the man and his buoyant character and zest for living as revealed to us by his recollections, and here it may be re-stated that to read the book is both an education and a pleasurable experience. One is let into the secret of another architect's full and happy life, and as one reads it is impossible not to be impressed, interested and at times humbled by so full and varied a life, lived during a period of transition, awakening and opportunity.

It is not necessary to admire Jackson's work to enjoy this book.

A. B. KNAPP-FISHER [*F*]

Romanesque Architecture in England, by *Sir Alfred (W.) Clapham.* (British Council. The Arts in Britain *series*, No. 12.) 8 in. 47 pp. + 16 pls. text plans. Longmans, Green, for the Council. 1950. 2*s*.

This is a welcome addition to the series, in which *Architecture in England since Wren* by John Summerson has already been published (1948), giving in compact form the main outlines of British art. The inclusion of a separate volume on Romanesque shows that this important, indeed foundation phase is receiving recognition. The author, whose recent death makes this review unhappily posthumous, has here summarized two of his important works, *English Romanesque architecture before the Conquest* (1930) and the same *after the Conquest* (1934), giving, in the latter case for the first time, authoritative general treatises on Anglo-Saxon and Anglo-Norman architecture; he had already summarized these in *Romanesque architecture in Europe* (1936).

In this booklet, which traces the evolution as a continuous story against the historical background, Saxon occupies nearly half of both text and illustrations, which are mostly photographic and admirably chosen. There are a short table of relevant dates, a glossary of architectural terms, and a good index. Although the work is an excellent popular introduction to the subject, it is also exciting for one already a student of the periods.

H.V.M.R.

Acoustical Designing in Architecture, by *V. O. Knudsen* and *C. M. Harris.* 8½ in. x + 457 pp. text illus. New York: John Wiley; Lond.: Chapman and Hall. 1950. £3 4*s*.

This new work is the successor to Professor Knudsen's *Architectural Acoustics*, which has been a standard text-book for nearly 20 years. It makes use of the results of recent research, hitherto available in English only in the pages of technical journals, and gives an account of familiar subjects in the light of this new material. The treatment is admirably balanced and the conclusions just. Chapter 8 on *Principles of Room Acoustics*, dealing as it does with the normal modes of room resonance and with the relationship between geometrical and wave acoustics, is especially valuable, though, like the other scientific sections, perhaps somewhat formidable for non-specialists.

The latter part of the book, dealing with the acoustical design of specific building types, is likely to be the most interesting to architects. Here the authors' recommendations are always reliable and the repeated insistence on the importance of insulation against intrusive noise and on proper diffusion in auditoria is welcome. But the number of different possible solutions to any particular acoustical problem is hardly suggested nor are sufficient examples of successful design illustrated. Sometimes the usefulness of the acoustical advice is largely nullified by lack of appreciation of other architectural problems, as will be seen from the church plan in Fig. 19. 2. Concert halls and opera houses are deliberately excluded

from the scope of the book with the result that musical requirements are not considered in sufficient detail. The use of sound amplification systems is too readily recommended —for all auditoria of more than 50,000 cu. ft.—and the chapter on this subject does not adequately indicate the difficulties and disappointments which an architect is likely to encounter with them, at any rate in this country.

The very full lists of absorption coefficients deal mostly with proprietary materials not on the English market. It is disappointing to find that similar data for normal building finishes are still no more complete or reliable in America than in this country.

Techniques of sound insulation are, as the authors admit, more highly developed here than in America, and architects will not find in this book information which is not already generally available to them.

In general the book can be strongly recommended for the concise account it gives of the present state of acoustical studies; but its very conciseness may sometimes mislead the beginner by failing to give him the background necessary for a full understanding of the subject.

HUGH CREIGHTON

The Story of English Architecture, by *Hugh Braun.* 8¾ in. [198] pp.+pls. Faber and Faber. 1950. 12s. 6d.

This book is an attempt to survey the whole field of English architecture in less than 200 pages and with just over 50 pictures. It is primarily designed for children, and provides information, not only upon the more monumental buildings of history, but also upon the simpler domestic achievements of each period and the methods of construction adopted.

Moderne Schweizer Architektur (Modern Swiss Architecture) 1925-45. *Max Bill,* ed. (New ed.) Text, 8 pp., and pls. (in 5 sections). 11¾ in. in box. Basel: Werner. 1949. £3 10*s.*

In 1938 a committee, which included Siegfried Giedion, Peter Meyer and other well-known personalities of the Swiss architectural world, published a portfolio of loose sheets illustrating with notes, plans and photographs various examples of modern architecture in Switzerland. A few years later a second selection was made by a similar group of editors, among whom was Max Bill. Now a revised edition has been published, containing a selection (made by Max Bill alone) from the original first two parts. It provides an interesting record of the development of modern architecture in Switzerland over a period of twenty years until the end of the last war.

The contents, beautifully printed on art paper, are divided into five sections, classified as Buildings for Work, Traffic, Dwelling Purposes, Recreation, and Education and Pleasure. In every case a brief explanatory text is supplied in German, French and English. Plans and photographs are reproduced with the clarity characteristic of the publishers and of the *Schweizerische Bauzeitung,* which has clearly played an important part in the preparation of the portfolio. A neat and reasonably solid box is provided to hold the sheets, but this curious method of presentation, although useful no doubt to those who propose to extract data on particular buildings, will not appeal to everybody, and is certainly of doubtful convenience in a library. J.C.P.

County Town. Backs and Fronts in Kennelsford, by *Lynton Lamb,* with drawings by the author. 8½ in. xii + 144 pp. incl. pls. text illus. Eyre and Spottiswoode. 1950. £1 1*s.*

County Town is not a guide book, nor one of those ponderous works which planners love, full of analyses, statistics and peculiar maps. Indeed, Mr. Lynton Lamb gives no useful information at all. But he has written and illustrated a fascinating study of a small town which it is a joy to read. He has an observant eye and he is a skilled reporter of what he sees. Above all, he possesses an infectious enthusiasm for looking about him, and he takes nothing for granted in either places or people.

The name Kennelsford is only a thin disguise for Chelmsford, the county town of Essex; perhaps not the worst, but certainly not the best of its kind. In spite of its general lack of architectural character, and the almost complete absence of individual buildings of distinction, the author finds much to interest his readers in the streets and suburbs of this homely place. The varied scenes which he describes fit into a mosaic which *is* the town. Obviously he enjoyed visiting the cattle sales and furniture auctions. His readers will recognize with amusement the 'cads' and 'bounders' whom he met in the pubs and at the by-pass hotel.

One may perhaps grumble that his comments are superficial and even unfair. He ignores the important industries of this place, which is both manufacturing and market town, and also the seat of church and county government. He ignores, too, the mass of sober, industrious citizens. Once or twice he is wrong in details, as, for instance, when he describes as plaster the sculptured panels on the Shire Hall façade. In fact they are of Coade Stone. But this is only carping criticism when there is so much to enjoy. In particular the line drawings are delightful. HAROLD CONOLLY [*F*]

Man, Society and Environment. The historical basis of planning, by *Brian Hackett.* (The science of planning series, 2. Gen. ed., G. Bell Barker.) 8½ in. xiv + 316 pp. incl. pls. Percival Marshall. 1950. £1 10*s.*

The ambitious title of this book seems to announce a more complete survey of the relationship between earlier cultures and the towns they produced than can in fact be found in it. Mr. Hackett undertook no mean task in attempting to condense so much historical fact into so few pages.

To cover the centuries from Neanderthal Man to the Groundnuts Development Scheme, from the Sumerian 'fertile crescent' to the Reilly green, is a monumental undertaking which could be tackled in two ways —either by exhaustive study and research, the full details of which would fill several volumes; or by careful selection resulting in a series of essays, each complete in itself yet part of the whole theme. Both methods should allow substance for *reflection* besides revelation, and it is this particular quality which is lacking in Mr. Hackett's book.

There are several illustrations, but they are all bunched together at the back of the book, and the reader's attention is insufficiently directed towards them, so their pertinence is missed. In a work of this nature this is an unfortunate mistake, and not even to be excused on the grounds of economy, with the book priced at 30*s.*

However, although packed like a pantechnicon, this book is certainly for the student a valuable synthesis of the influence on his environment of Man's cultural achievements from the earliest civilization to the present day. The best chapters are those which deal with the pre-Christian era.

The wealth of fact that the book presents shows that Mr. Hackett obviously has more to say than could be contained in only one volume, and one feels he could present his material in a more digestible and enlightening form had he but time and space. It is to be hoped that these two vital requirements will be available to him at a later date, when perhaps he will be able to produce a richer and riper work, based on his present volume, and taking its place beside the writings of such masters as Mumford, Trevelyan or the Quennells. MAX LOCK [*F*]

Der Stahlbetonbau [building in reinforced concrete], *&c.,* by *Rudolf Saliger.* 7th ed. 10 in. xiv + 644 pp. text diags. Vienna: Deuticke. 1949. £3 15*s.* 10*d.*

The earlier editions of this book have always been a standard textbook in Central Europe. To this new edition has been added a considerable amount of information on all those developments which have taken place since 1933, that is on the increased understanding of the behaviour of concrete under stress, its plasticity, high tensile steel, prestressing and special features like mushroom construction and folding slabs.

The basis for calculations for these structures is given and the numerous tables have been enlarged to deal with the Hardy Cross method and others for working out redundant systems. Standard methods for calculating flat slabs (very similar to those used in this country) are also included. There is much information given on all those subjects which might be required in connection with reinforced concrete, and reading through this book it can only be regretted that it has not been translated into English, as there is at present no book to equal it. True the book deals with exact methods of calculation. In this country the attitude, at least to standard problems, is different and much less calculation is done.

Saliger appreciates the fact that concrete does not behave with sufficient accuracy to justify these very exact calculations, but he keeps to them partly because they give a very definite basis, and partly because it is the custom in Europe to do so.

F. J. SAMUELY

Revision of R.I.B.A. Bye-laws

Report of a Special General Meeting of the R.I.B.A. held on Tuesday 6 March 1951

The President, Mr. A. Graham Henderson, A.R.S.A., in the Chair

The President: This is a Special General Meeting held for the purpose of considering and, if thought fit, approving the Council's recommendations for the revisions of the Bye-laws.

The proposed deletions and amendments are set out in a printed pamphlet which was circulated to members with the February issue of the JOURNAL. A copy has been signed by me and is presented to this meeting in accordance with the terms of the resolution, which I will now call upon the Honorary Secretary to move.

The Hon. Secretary, Mr. Martin S. Briggs [*F*]: This Special General Meeting has been summoned to submit the draft revisions to the Bye-laws to the general body of members and obtain their approval. If such approval is obtained tonight, a confirmatory meeting must be held not less than seven and not more than twenty-eight days subsequently. This confirmatory meeting is fixed provisionally for 3 April.

I want to make it quite clear that none of these proposals involves any change in principle or in policy. All the suggested amendments are simply changes in detail of machinery to facilitate administration or, in a number of cases, to make the Bye-law workable under modern conditions, and to put an end to a position in which the Bye-law has been infringed and to the impossibility of observing it in the letter.

I, therefore, move the following resolution: 'That subject to the approval thereof by the Lords of His Majesty's Most Honourable Privy Council the regulations set forth in the printed document produced to this meeting and for the purpose of identification signed by the Chairman thereof be made and adopted as the Bye-laws of the Royal Institute to the exclusion of and in substitution for all the existing Bye-laws'.

The Hon. Treasurer, Mr. A. Leonard Roberts [*F*]: I beg to second the resolution.

The President: I think it will facilitate our dealing with this matter if we take the pamphlet clause by clause, and I will ask the Honorary Secretary to deal with it in that way. Anyone who wishes to propose an amendment to what is proposed here can do so when it arises.

The Hon. Secretary: The proposed amendment to Bye-law No. 2 gives to the Council, as advised by the Board of Architectural Education, full discretion in regard to examination subjects. This has, in fact, been the principle for a number of years.

Bye-law No. 2 *as amended was approved.*

The Hon. Secretary: In Bye-law No. 3, also in five subsequent Bye-laws which I need not particularize, there is simply an amendment to the name of the Irish Free State to conform to its present proper legal description.

Bye-law No. 3 *as amended was approved.*

The Hon. Secretary: Bye-laws Nos. 4, 5 and 6 are amended to bring the procedure for nomination for election to each class of Honorary Membership into conformity.

Bye-laws Nos. 4, 5 *and* 6 *as amended were approved.*

The Hon. Secretary: Bye-law No. 10 is amended to dispense with the requirement that names and addresses of candidates for election shall be suspended in the meeting room, since adequate notice is given to everyone through publication in the JOURNAL. The Bye-law is also amended, together with a similar provision in Bye-law 11, to conform to the terms of Bye-law 74. Thus Allied Societies will be consulted at all stages in the election of members.

Bye-law No. 10 *as amended was approved.*

The Hon. Secretary: Bye-law No. 11 is amended so that the quorum and majority required shall be consistent with the requirements in Bye-laws 24 and 37.

Bye-law No. 11 *as amended was approved.*

The Hon. Secretary: With regard to Bye-law No. 14, it is proposed that the last part should be omitted and the first part retained unaltered, but it has since been suggested that the words 'shall be entitled to be formally introduced' should be substituted for the words 'shall be formally introduced'.

Mr. Charles H. Pike [*A*]: I should like to move an amendment to Bye-law 14. At General Meetings we have sometimes had to wait fifteen to twenty minutes (there was a good instance the other day, when Mr. Harrison from the United States addressed us) while new members were introduced. I do not suggest that that is not an important function—I think it is—but I feel that if we could devise some means of introducing new members either before or after a meeting, informally, it would be a rather better arrangement. For instance, it might be possible for the President and perhaps some members of the Council to meet the new members in the foyer, say at five o'clock on the day of the meeting, so that the new members could get to know the President and one or two members of the Council. I feel that that would save a lot of time at a rather important period of the day. With the best will in the world, the function becomes rather tiresome after the first quarter of an hour.

Mr. Howard Robertson [*F*]: As one who was present at the meeting the other day when Mr. Harrison addressed us, I may say that there were a number of guests present whom I personally knew, and I was interested to find that all these guests found the ceremony extremely interesting. They enjoyed seeing these new members come up, and they commented on them. I do not know whether that aspect of this ceremony has been considered. Personally, it meant little to me—I have seen so many of them—but these newcomers did find it a ceremonious occasion and enjoyed it. I think that is perhaps an aspect of the matter which has not struck all the members, who are used to the ceremony.

Mr. Anthony M. Chitty [*F*]: I think also we should consider the point of view of the 'admittees' themselves, to whom this is perhaps a rather great occasion, when they come to shake hands with the President of this Institute. Those whom I know treat the ceremony with great respect, as I also did when I was admitted, and I think that the other people who are present on the occasion and have seen the ceremony before should pay some respect to the feelings of the people who are admitted. It is an important ceremony, and I think perhaps we should bear with it.

The Hon. Secretary: I was sitting next to the person in the room whom I expected to object most to the delay caused by the ceremony, and that was Mr. Harrison himself, but he told me at the time that he had never seen anything like it and he was very much impressed by it. He watched it with the greatest interest and asked who the people were.

We have a rather big accumulation of candidates who are now passing through the admission process, and it is to be expected that the numbers will decrease in the next few years, in which case the time occupied by the admission ceremony will be reduced. At the present time it is rather exceptional

The President: Do you wish to move an amendment, Mr. Pike?

Mr. Pike: The meeting seems to be definitely against my point of view. I was not wishing to detract from the ceremony at all but rather to add to it and make it a rather special occasion of its own, when relatives of the new members could see them received by the President, and so on. I thought it might form part of the General Meeting but take place before the lecture was due to start.

Mr. J. A. Spon [*A*]: As one of the members who was at the meeting to which reference has been made, I should like to say that I agree with Mr. Pike about the ceremony, because, to be frank, when there are forty or fifty members filing through at a very rapid rate the impression on the members themselves—at least on me in that instance—is that they are being rushed through in order to save a great many other members, who are more used to this sort of spectacle, having to wait for the lecture. I think there is a good deal to be said for making it either a separate occasion or a special occasion, because I think it would then make

a very much greater impression on the members themselves.

The President: Are you submitting an amendment?

Mr. Pike: I do not know that it will be seconded, but I should like to move that the Bye-law be amended to extend the meeting—I do not know quite how to put it—so that it could come in the early part of the meeting.

The Secretary: Would it be in order for me to speak on this? Owing to the very large numbers that have been coming forward since the end of the war, this point has been discussed on several occasions at Executive Committee and Council meetings, and the suggestion was considered that possibly the procedure should be more informal, and that the President and perhaps the Vice-Presidents should shake hands with the new members beforehand; but it was felt by the Executive Committee and the Council that the traditional part of the ceremony was the formal admission before the general assembly of members in this room at the General Meeting itself.

Mr. Pike: Then I think in the circumstances I will withdraw my suggestion.

The President: I think you may take it that the Council will consider the matter very carefully if it appears to interfere with the general convenience of the members.

There is a slight verbal amendment, which I think the Honorary Secretary has moved, in the proposed amendment as printed.

The Hon. Secretary: It is suggested that the amendment should be as follows: 'Every member who has complied with the preceding Bye-law 13 shall be entitled to be formally introduced and admitted at the first General Meeting at which he may be present by the President, or the Chairman of the meeting.'

Bye-law No. 14 *as thus amended was approved.*

The Hon. Secretary: Bye-laws 23 and 24 are amended to bring Students, R.I.B.A., within the disciplinary provisions. In addition, Bye-law 23 is amended in one important detail. Members convicted of indictable offences will no longer cease to be members *ipso facto*. Since this Bye-law was first framed the number of indictable offences has been greatly extended through the body of administrative law and cases occur where members, convicted of quite minor offences which are technically indictable, automatically lose their membership without it ever becoming known. The legal position of such members is somewhat doubtful.

Mr. George Whitby [*A*]: I should like to say a few words on this before it is agreed. It is rather distressing that this pamphlet has called our attention to so many provisions in the Bye-laws which have been more honoured in the breach than the observance. There must be many members who have been convicted of dangerous driving offences and suchlike and who are *ipso facto* no longer members of the Institute. I should like to ask whether at the next meeting some action will be taken which will give absolution to all the officers and the Council who have ill-treated these Bye-laws, and which will make legal all the improper acts that they have done.

Returning to Bye-law 23, I would say that the amendment is a strange one. In fact, the whole purport of it is in the second paragraph, which reads: 'In the event of the conviction of a member or Student upon indictment the Council may expel such member or Student.' If the Council had really considered this Bye-law, I feel that it would not have put in that paragraph at all. It is quite unnecessary, because if a member is convicted upon indictment and it is a serious conviction he is surely guilty of conduct which is derogatory to his professional status. That is included in the first paragraph. I should still like to see in the Bye-laws something which would bring that point to the attention of all members—that if a member is convicted of a serious charge he automatically ceases to be a member of this Institute. Then if the Council should think that the conviction is unjust or improper the Council could by an act of grace re-admit him. The Council has done such things before. Members have been convicted on indictment, and the publicity which has attended the case has forced the Council to take action; the Council has taken action and the members have been informed that they have ceased to be members of the Institute. The Council has, however, in its wisdom, thought that the offence was not a really serious one which affected the members' status, and the members have been reinstated. Under which Bye-law they have been reinstated I do not know. I do not believe that the Council has power to reinstate a member after he has ceased to be a member on that ground.

I should like to move that this amendment be sent back to the Council for further consideration, in the hope that the Council will consider whether some new clause can be incorporated which will automatically make a member cease his membership if he is found guilty upon a serious indictment.

The President: I will ask the Secretary to deal with the factual statements which Mr. Whitby has made.

The Secretary: The Secretary is responsible for seeing that this Bye-law is carried out, and the position is quite impossible as it stands, because, as Mr. Whitby has intimated that he realizes, we can not always know of the cases in which members are convicted of indictable offences. I think that would apply equally if Mr. Whitby were able to devise some category of crimes for which expulsion should be automatic. He rather suggested that something of the sort should still be maintained. I may say, further, that we had long discussions with the Institute's Solicitor on the re-framing of this particular Bye-law, because it has given us a good deal of concern, and the amendment is in the form approved by the Solicitor.

Mr. Whitby: May I ask Mr. Spragg how the Solicitor justifies the second paragraph? It seems to me to be unnecessary. Perhaps someone can say what the second paragraph does add to the first.

Mr. Lockhart W. Hutson [*F*]: Might I suggest that the first paragraph deals with a man's professional character, and the second paragraph is put in, I think, to deal with offences of any kind, which may not have anything to do with professional conduct at all?

The Secretary: I think that is the answer.

Mr. Whitby: My point is that any serious indictable offence is surely derogatory to a man's professional character, and that, after all, is the whole point of the earlier Bye-law. To cut matters short, may I move the deletion of the second paragraph of the proposed amended Bye-law 23?

Mr. D. H. McMorran [*F*]: In order to secure a vote and to tidy up the Bye-laws, I will second that.

The amendment was put to the meeting and was lost.

Bye-laws Nos. 23 *and* 24, *as amended in the printed pamphlet, were approved.*

The Hon. Secretary: Bye-law 25 is amended as the publication of the cancellation of diplomas is unnecessary. Cessation of membership is always published and this amounts to the same thing.

Bye-law No. 25 *as amended was approved.*

The Hon. Secretary: No change is proposed in Bye-laws 26 to 34 inclusive, except for a few words in Bye-law 28, where a change is required by circumstances, owing to the change in name of the Irish Free State, the Leicester and Leicestershire Society of Architects, and the Association of Architects, Surveyors and Technical Assistants. The new names have been inserted in the Bye-law that is proposed.

Mr. J. A. Spon [*A*]: I do not know whether it is in order for me to ask a question on a point of principle here, but I have been rather puzzled as to why the Association of Building Technicians is included.

The President: That is the new name of the body that is included in the existing Bye-law.

Mr. Spon: I understand that, but am I in order in asking why they were included in the first place? I have studied these Bye-laws, and, as far as I can see, they are the only body which has a representative on the Council and which does not wholly represent architects. I believe that a member who is admitted to the Council must be a representative of a society that is wholly or mainly composed of architects. Having seen the various circulars encouraging people to become members of the Association of Building Technicians, which includes builders' managers, clerks of works, engineers, and so on, I find some difficulty in believing that the whole of the Association's members are architects or that the majority of them are architects.

The Secretary: I have not got the facts and figures here in front of me, but I believe I am right in saying that the first admission of this body was in the early 1920's—I am not certain about the date—and at that time it was not composed solely of architects and architectural assistants. At that time it had the word 'Surveyors' in its title.

Mr. Spon: That does not quite satisfy me. Should not their status be reconsidered from time to time? It is well known that

they are a trade union. I feel it is rather peculiar that they are the only body with a representative on the Council who would speak for members outside the profession of architecture.

The President: Do you wish to move an amendment?

Mr. Spon: No.

Bye-law No. 28 *as amended was approved.*

The Hon. Secretary: Bye-law 35, governing the method of election of Council, is amended to dispense with a number of minor restrictions in detail which have, in practice, caused considerable administrative difficulty and unnecessary expense. The general principles are not affected.

Bye-law No. 35 *as amended was approved.*

The Hon. Secretary: The amendments in Bye-law 36 are to conform to the provisions of Bye-law 35 and to complete the provisions, previously omitted, for replacing *ex officio* members of Council in the event of death.

Bye-law No. 36 *as amended was approved.*

The Hon. Secretary: Bye-law 38 is redrafted in more definite terms. Reference to the Bye-laws in force in the year 1928 as mentioned in the existing Bye-law does not make clear what subjects were referred to the General Body.

Bye-law No. 38 *as amended was approved.*

The Hon. Secretary: The amendment as to time in Bye-law 42 is to remove an anomaly when read with Bye-law 58, which mentions the date of the Annual General Meeting.

Bye-law No. 42 *as amended was approved.*

The Hon. Secretary: There has been a small change in the organization of the R.I.B.A. staff, by which the Assistant Secretary, authorized to sign cheques under the provisions of Bye-law 45, has been redesignated Deputy Secretary. The Bye-law is amended in this particular.

Bye-law No. 45 *as amended was approved.*

The Hon. Secretary: Bye-law 46 is amended to conform to modern conditions. In practice it has been found quite impossible to seal 100 or more members' diplomas in the presence of the Council at a meeting.

Bye-law No. 46 *as amended was approved.*

The Hon. Secretary: Bye-law 47 is amended to provide for the audit of accounts by professional auditors.

Bye-law No. 47 *as amended was approved.*

The Hon. Secretary: Bye-laws 51, 53 and 58 are amended in minor detail to facilitate administration.

Bye-laws Nos. 51, 53 *and* 58 *as amended were approved.*

The Hon. Secretary: Bye-law 59 is amended to conform to the requirements of Bye-law 54.

Mr. D. N. Martin-Kaye [*F*]: With regard to Bye-law 59, I should like to draw attention to the fact that in these Bye-laws the general body of members is afforded no prerogative of any kind in the convention of meetings. At present such convention appears to be at the sole discretion of the Council or the Executive Committee. This omission, I think, is a very grave one in the Bye-laws of any institution, for I think it is undemocratic. I do not wish to infer that the Council would decline to convene a meeting if called upon to do so, but under the Bye-laws there is no compulsion laid upon the Council to do so. In fact, to take an extreme illustration, should the Council fail to exercise its functions there would be nothing that the general body could do about it under the Bye-laws. No doubt there are ways and means of overcoming this difficulty, but there is no mention of them in print.

It might be argued that even if such a Bye-law were inserted it would not be taken advantage of and that possibly such meetings would never be necessary. Again, it might be argued that there are sufficient ventilating media without such innovation. That, I submit, constitutes no valid objection to the proposal.

I have drafted a suggested addition to Bye-law 59, and I have given notice of it to the Secretary. It is as follows: 'The Council shall, however, on the receipt of a formal request in writing to the Secretary of the Institute, signed by five Fellows, three Associates and two Licentiates, call a special general or extraordinary meeting, whichever may be deemed appropriate for the purpose outlined in the request, and at least seven days' previous notice thereof shall be sent to every member entitled to be present. The notice shall state the business of the meeting to be discussed.'

Although it may not be considered necessary it would be a great incentive to the general body of members if they knew that at any time they could convene a special meeting. If you want the general body of members to take, as is desirable, an active interest in the affairs of this Institute, I submit that such incentive and prerogative should be afforded to them.

As far as the Council is concerned, under Bye-law 37 the President or any five members of the Council have the right to ask for an extraordinary meeting of the Council to be held, but, as far as the general body is concerned, they have no prerogative of any kind.

The President: Are you moving it now?

Mr. Martin-Kaye: Yes, I will move it.

The President: Have you a seconder? . . . As there is no seconder, I am afraid it falls to the ground. I think you can take it from me that if there is any real call for a meeting the Council would call such a meeting. I think also it should be borne in mind that the position of this Institute is different from that of some other bodies, which can conveniently hold representative meetings. Special meetings called by the Institute must be attended chiefly by London members, as it is often very inconvenient for members from outside London to attend them, so they can not be really representative meetings. I would also remind you that the Council is a very representative body, its membership being drawn from all the Allied Societies, so I think you can take it that any matter which arises and affects the profession will be dealt with by the Council.

Mr. Martin-Kaye: I do want to make it quite clear that I have not the slightest doubt that the Council would call a meeting if asked to do so, but at the same time the Council, if I may say so, should be protected against any charge of complete autocracy should any ill-advised people choose to make such a charge. If it is in print in the Bye-laws that a meeting is to be called upon request, then if the general body of members do not take advantage of that the Council are quite covered in the matter.

The President: Thank you. You have made your point. We will now pass on to the next Bye-law.

Bye-law No. 59 *as amended was approved.*

The Hon. Secretary: In Bye-law 60 there is the alteration in the name of the Irish Free State which I mentioned before.

Bye-law No. 60 *as amended was approved.*

The Hon. Secretary: Bye-law 65 is deleted. The names of contributors are in fact published, but not necessarily in the JOURNAL.

The deletion of Bye-law No. 65 *was approved.*

The Hon. Secretary: In Bye-law 69 the word 'Bye-laws' is added.

The President: The numbering of these Bye-laws will be altered owing to the deletion of Bye-law 65.

Bye-law No. 69 *as amended was approved.*

The Hon. Secretary: Bye-laws 70 and 71 are slightly amended to provide again for modern conditions. It has been found that the Allied Societies in Commonwealth countries overseas are constituted in such a way that tutelage in detail by the R.I.B.A. is not always practicable. Their Bye-laws are authorized by the legislature of the country concerned, and they are not susceptible to correction by the R.I.B.A. Provision is now made in such cases for the requirement of R.I.B.A. approval to be waived.

Bye-laws Nos. 70 *and* 71 *as amended were approved.*

The Hon. Secretary: The new paragraph 74 (*b*), beginning 'Each of the bodies specified', I think explains itself. It makes formal recognition of a provision which has been tried experimentally and with success for the past few years.

Bye-law 74 (*b*) *was approved.*

The President: It has been moved by the Honorary Secretary and seconded by the Honorary Treasurer that the amended Bye-laws as printed in this document be approved. With the verbal amendment which has already been approved in Bye-law 14, I will put the resolution to the meeting.

The resolution was put to the meeting and carried.

The Hon. Secretary: A Special General Meeting will be held on Tuesday 3 April, at the conclusion of the Seventh General Meeting, for the purpose of confirming the resolution which has just been passed.

Practice Notes

Edited by Charles Woodward [*A*]

IN PARLIAMENT. Development Charges. Asked whether, in view of the revised development charge exemptions shown in pamphlet No. 1233, dated 11 July 1950, he would refund development charges already paid by people between the passing of the Act and the above amendment where such charges would not now apply, the Minister of Local Government and Planning replied: No, Sir. I have no power to make regulations with retrospective effect. (6 February 1951.)

Tender. Worthing. Asked why his regional officer had insisted on the reduction of a tender submitted to him by the Worthing Corporation for the erection of nine houses, under Circular Letter 92/46, from £1,364 to £1,296—a reduction of 5 per cent—in view of the fact that approval was granted for five similar houses in December 1949, at a price of £1,330; and that such a reduction can not represent the saving on overheads and other costs inherent in the construction of four additional houses, the Minister of Local Government and Planning replied: Because the risk of a rise in prices of materials fell on the Corporation in the first case, and on the contractor in the second.

Asked, further, whether he was not aware that the bill of quantities had already been agreed between the regional officer and the Corporation; that the specifications have already been cut to the bone; and that any procrastination will incur an increase in the cost of these houses—after all, we must get on with house building, the Minister replied: Nobody is stopping them getting on with it. It is a question of the form of contract. (6 February 1951.)

Carlton House Terrace. Asked how far the scheme for the reconstruction of Carlton House Terrace has proceeded; whether the plans have been approved by him and, if so, on what date; and how far His Majesty's Government are committed to this scheme, the Minister of Works replied:—Preliminary sketch plans of the scheme for reconstructing Carlton House Terrace have been prepared and are now being discussed with the planning authority. These plans were approved by my predecessor in 1948 after they had been agreed by the Royal Fine Art Commission. The Government are committed to expenditure on architect's fees and have spent some money on securing vacant possession of the property. (22 February 1951.)

Housing (Private Building). Asked whether he would make special arrangements for some of the designs of the £950 permanent houses which won the competition in the journal THE BUILDER to be licensed for construction, the Minister of Local Government and Planning replied: Subject to their own building bye-laws, any local authority may authorize the construction of houses of this type within their permitted quota of private licences. (23 February 1951.)

Private Building Licences. Asked whether he would consider sanctioning the issue of private building licences in excess of the ratio of one in five to districts where he is satisfied that such action would more speedily alleviate the housing shortage without interfering with the local authority's council housing programme, the Minister of Local Government and Planning replied: Yes, Sir. (27 February 1951.)

Architectural Journal. (Article.) Asked if his attention had been called to the article entitled *Military Service* on page 32 of issue No. 8 of the Architectural Students' Association Journal PLAN, advising young men to refuse to carry out their national service training; and whether he has considered taking action on it under the Incitement to Disaffection Act, 1934, the Attorney-General replied: I have considered the article to which the Hon. Member's Question refers. I do not think that it would be appropriate to take action under the Incitement to Disaffection Act, 1934, in regard to it. (12 March 1951.)

NATIONAL JOINT COUNCIL FOR THE BUILDING INDUSTRY. The National Joint Council has decided to make a general increase in wages of 2½d. per hour, which will take effect from 5 March 1951. This wage increase will apply equally to craftsmen and labourers, and does not affect the recent agreed settlement on incentive payments or the ordinary operation of the sliding scale clause.

Under the Holidays With Pay Agreements it has been agreed that on and from 26 March 1951 in the case of Public Holidays, and 2 April 1951 in the case of Annual Holidays, there is to be an increase of 3*d.* per week in the values of the stamps credited weekly to Operatives; i.e., from 2*s.* to 2*s.* 3*d.* per week for adult workers, and from 1*s.* 6*d.* to 1*s.* 9*d.* per week for persons (male or female) under 18 years of age.

MINISTRY OF WORKS. The Minister of Works has authorized an increase of 12½ per cent in the maximum selling prices of roofing felts and dampcourse made to British Standard Specification by the members of the Association of British Roofing Felt Manufacturers. The revised prices operate as regards all deliveries made on and after 31 January 1951. (M.O.W. 14/51. P.I. 73. 7 February 1951.)

Economy in Cement. The Ministry of Works have issued an addendum to their Economy Memorandum on the use of Cement. The Addendum has been drawn up in conjunction with the members of the Sub-Committee on Cement Economy in Engineering and Large Scale Building, and gives guidance on the precautions necessary to obtain quality control of concrete, choice of materials, design of mix, batching, water content, works cubes and general supervision. This Addendum to P.I. 31/6 can be obtained free of charge from the Ministry of Works (Room 617), Lambeth Bridge House, S.E.1. There are also copies in the R.I.B.A. Library.

Gypsum Plasterboard. The Minister has authorized an increase of 1¾*d.* per square yard in the maximum prices of gypsum plasterboard. The revised prices operate as regards deliveries made on and after 12 February 1951. (M.O.W. 20/51. P.I. 73. 15 February 1951.)

MINISTRY OF EDUCATION. Circular 191 (addendum No. 1) dated 16 February 1951 refers to the limits which have been announced on nett cost per place for new primary and secondary schools. It is essential that these cost ceilings should be observed and the Minister has therefore decided to modify Circular 191 so as to require reference to the Ministry for approval of tenders where it is proposed to accept a tender which would raise nett cost per place above the appropriate limit. Paragraph 15 of Circular 191 is cancelled and the following substituted:

'An authority need not refer to the Ministry for approval of the tender unless:

(*a*) they propose to accept a tender other than the lowest, in which case they should send to the Ministry a complete list of tenders received and a statement of their reasons for not accepting the lowest.

(*b*) the lowest tender exceeds by 5 per cent. the approved estimated cost. (The authority will no doubt normally charge the excess to capital expenditure out of revenue if they can do so within the limit allowed them under paragraph 6 of Circular 210. If they can not do so, they will need to consider meeting the excess by means of a supplementary loan, if necessary covering other comparatively small items of expenditure as well) or

(*c*) in the case of projects for new primary or secondary schools, the lowest tender price exceeds the appropriate limit on nett cost per place, as specified in the letter approving the plans and the estimated expenditure; the authority should indicate how they propose to obtain the necessary reduction in nett cost per place.'

These conditions will apply to projects included in the 1951-52 and later programmes. They will not apply to projects approved within the 1950 programme nor to any projects at present included in the 1950 programme which, because they can not be started before 31 March 1951, may have to be carried forward to 1951-52.

MINISTRY OF LOCAL GOVERNMENT AND PLANNING. The Minister has sent a circular to all Local Authorities in England and Wales calling for more informal contact between the Authorities themselves and advertisers. He hopes that this will lead to a reduction in the number of advertisement appeals. Since the Advertisement Regulations came into force on 1 August 1948 more than 2,000 appeals against decisions of Local Authorities refusing permission for outdoor advertisements have been made.

The importance of discussion between Authorities and advertisers before making

a formal application for permission to put up advertisements is particularly stressed in the Circular. At this stage the Authority will often be able to indicate to the applicant the type of proposal which would not be objected to. Appeals arising from cases in which consent is made subject to conditions could often be avoided if the conditions were discussed with the advertiser before the issue of a formal decision.

The Circular is Ministry of Local Government and Planning Circular No. 1, *Advertisement Applications*, obtainable at H.M. Stationery Office, price 2*d*.

Historic Buildings Listed in London. The Ministry have listed some 150 buildings in Finsbury of special architectural or historic interest. They include the house of John Wesley (now the Wesley Museum), Wesley's Chapel and his tomb and statue, and many famous tombs and monuments in Bunhill Fields. The Charterhouse, formerly the Carthusian Priory, is also included in the list.

The listings are made by the Minister under Section 30 of the 1947 Planning Act.

Lifts in Blocks of Dwellings Subsidy. Circular L.R.I. 2/51 dated 16 February 1951 refers to the subsidy payable in respect of the provision of lifts in blocks of dwellings of four storeys or more, and is addressed to the L.C.C., the Common Council of the City of London and the Metropolitan Borough Councils. The Minister states that, in calculating the subsidy, every flat served by a lift, including those on the ground floor of a block, will be taken into account. The Minister does not, however, consider that ordinarily a flat can be said to be served by a lift, and hence eligible for the additional subsidy, unless it has access within 150 ft. of its entrance to a lift on its own floor. Similarly, he does not consider that any one lift can normally give adequate service to more than 50 flats and, save in exceptional cases, will limit the additional subsidy to this number.

Applications for the additional subsidy are made under the Housing (Financial and Miscellaneous Provisions) Act, 1946, as amended by the Housing Act, 1949, and should be accompanied by a lay-out plan of not less than 1/500, showing the position of the lift, the flats and their party walls on a typical floor of each block. A certificate by a Technical Officer of the Council must state the number of storeys in each block to which the lift runs, and the number of flats on each floor having direct access on that floor to the lift, and the method of access, i.e., corridor, balcony, etc. Particulars of any variation from the typical floor plan should be shown.

CENTRAL LAND BOARD. Development Charges on Single House Plots. The Board have issued a revision of their Leaflet House 2 which cancels previous editions. The main alteration is that the Board will not, except in a few special cases, collect from single-plot owners any amount by which their development charge exceeds their claim because of a rise in market values.

Under paragraph 5(*b*) a person is eligible for a set-off against development charge if he starts to build a house on his plot for occupation by himself or by a member of his immediate family before 1 January 1953. The paragraph states that '*building operations started without a building licence will not qualify*.'

The leaflet is obtainable at the Board's offices under the title *House* 2 (*2nd Revision*) issued January 1951. Members interested should obtain the leaflet, which is too long to reproduce in these Notes.

Rule 3 and Claims Against the £300 million. The Chancellor of the Exchequer stated in Parliament on 15 December 1950 that he had authorized the Central Land Board to value certain claims made under Part VI of the Town and Country Planning Act 1947, and under the corresponding provisions of the Scottish Act, on the basis of disregarding one of the provisions of Rule 3 of the Rules set out in Section 2 of the Acquisition of Land (Assessment of Compensation) Act, 1919. He also said that if potential claimants, who omitted to put in claims within the time limit because they were of the opinion that the application of Rule 3 would render a claim fruitless, notified the Board, their cases would be carefully recorded for such consideration as it might be decided to give them at a future date.

Owners who notify the Board in this way will, if the Board consider that their case is one referred to in the Chancellor's statement, receive two copies of an adapted Form S.1, one of which is to be completed and returned within three months of receipt. The forms will be endorsed to the effect that they are issued for record purposes and do not constitute claims on the £300 million.

The Board's letter accompanying the forms will give guidance as to how they should be completed, and will make it clear that no information can yet be given on the treatment of these cases.

(Central Land Board, 19 February 1951.)

CODES OF PRACTICE. The Fourth Report of the Codes of Practice Council has now been issued and is obtainable at H.M. Stationery Office, price 1*s*. net. The Report covers the period from 1 January 1947 to 31 December 1949.

NATIONAL BUILDING STUDIES. Part IV of Technical Paper No. 6 has now been published and deals with Fire Resistance of Timber Doors. The Paper is the result of investigations carried out by the Building Research Station on fire resistance and related problems. It is obtainable at H.M. Stationery Office, price 1*s*. net.

WAR DAMAGE CLAIMS. Examination of Exceptional Cases. Representatives of the Chartered Auctioneers' and Estate Agents' Institute recently put to the War Damage Commission certain considerations relating to the examination of those exceptional cases in which the Commission are still prepared to consider accepting a late notification. They pointed out that the Commission's practice of having an independent inspection by their own technical officer might mean that evidence held by the owner's professional adviser in support of the contention that the specified defects were due to war damage and not to some other cause might not be known to the assessor, and asked whether the procedure could be modified to meet this point.

For the Commission it was pointed out that the application form C.I.L.N. itself calls on the owner to set out fully the facts on which he relies to support his case. When an owner is seeking a very special concession the onus must be on him, and not on the Commission, to produce the fullest possible supporting evidence; it would be appropriate for him, with the assistance of his professional adviser, to give such particulars as the location and type of the bombs to which the defects are attributed, to take into consideration the extent of repair already done either by the local Council or by some other person, and to set out fully all the technical arguments which he relies on to establish that the defects for which he seeks to make a claim must be attributed to war damage and not to some other cause.

It was essential for the Commission, therefore, to maintain their practice of obtaining an independent report from their own Technical Officers and they could not embark on arguments about the admissibility of items disallowed by them in the light of that Officer's report, particularly where the defects in question were non-structural. Where, however, items of substantial structural damage were in question and the owner, or his professional adviser, on being told that the Commission could not accept the items, was in a position to produce reasoned arguments not already put before the Commission in support of the contention that the items were due to war damage and not to some other cause, the Commission, while not prepared to enter into discussions, would give due consideration to those arguments.

The representatives of the Institute were also informed that:

(*a*) the Commission would consider revising the wording of the covering letter sent to a prospective applicant with the C.I.L.N. to stress the importance of giving the full facts and supporting evidence at the time of the application;

(*b*) the Commission would look to professional advisers to co-operate by assisting their clients to give as much information as they could on the essential facts and technical evidence on which they relied to support their view that the items scheduled were war damage;

(*c*) the Commission would consider reasoned arguments or fresh evidence in support of items disallowed in recent cases in the form of a letter from the professional adviser, provided that this is confined to substantial structural items; this review does not imply that there will necessarily be a second inspection with the adviser present. (14 February 1951.)

Obituaries

Harold Cliffe Davies, F.R.I.C.S. [*L*], who died 22 December 1950, was a partner in the firm of Richard Davies, Son and Escolme of Birkenhead, and commenced practice in 1907. He acquired his father's practice in 1910, and in 1949 took into partnership Mr. John Escolme, F.R.I.C.S.

Mr. Davies was born in Birkenhead in 1884 and educated at St. Catherine's School, Tranmere, and later at Clifton Park School. Prior to commencing practice on his own account in 1907 he was assistant surveyor in the land steward's office of the City Surveyor's Department, Liverpool.

He took a keen interest in local Freemasonry and held prominent offices. In the sporting world he was for some years in the front rank as a distance runner, and he prized very highly many trophies won in the Lancashire district. He later took up lawn tennis and played for his county in 1913. He played lacrosse for the Liverpool Club, and football for the Prenton and Green Lawn Clubs; in 1922 and 1926 he won the gold medals of the Cheshire Angling Association competitions.

George Brumell [*A*]. We have been notified of the death on 31 May 1950, at the age of 77, of George Brumell [*A*].

Mr. Brumell was educated at Clifton and articled to Messrs. Hicks and Charley Wood, of Newcastle-on-Tyne. After qualifying as an Associate he went to Egypt to do architectural work for the Government, then for a time to Nelson, New Zealand, and finally returned home to private practice in Bournemouth. He retired in 1931.

Mr. Brumell was an authority on the history of British Postmarks, on which he wrote several books, including *The Franking System in the Post Office*.

John Thomas Blackwell [*Ret. L*] died on 7 January at the age of 88. Mr. Blackwell was educated at Kimbolton School, and then apprenticed to a Leicester firm. The bulk of his architectural work consisted of schools. He was responsible for St. Mary's School, the Ronald Tree Nursery School, the Avondale Road Infants' School and the Henry Gotch School, all in Kettering; for Towcester and Daventry Grammar Schools; for a number of Church of England schools, including those at Eye, Woodford, Duston and Morcott; and for the war memorials at Kettering and Stanwick Parish Churches. He was a member of the local panel of the Council for the Preservation of Rural England.

His former partner, Mr. E. J. Story [*A*], will be carrying on his practice at Gold Street Chambers, Kettering.

Robert Sharp [*F*]. Mr. Sharp died on 3 October 1950 at the age of 66. He was articled to J. A. Ogg-Allan [*F*] in Aberdeen, and then in 1906 started in practice in Bombay. He subsequently moved to Colombo, where he built the Grand Oriental Hotel. In 1916 he returned to England and practised in London. There he built the Hospital of Our Lady of Consolation, Lambeth; the Bluebird Garage ,Fulham; Moons' Garage, Kensington; and Lex Garage, Lexington Street, W.1. He also built factories at Hayes and Brentford for the Thompson and Norris Manufacturing Co. Ltd., and a factory at Southfields for Messrs. George Mason and Co. Ltd. His son, Mr. Alan G. Sharp, is continuing his practice at 13 Lower Belgrave Street, S.W.1.

John Reginald Best [*Ret. A*]. The death is reported of John Reginald Best, at the age of 84. He died on 31 December last. He specialized in the restoration of old houses; the Technical School at Bootle, finished in 1900, was also his work.

Notes and Notices

NOTICES

Seventh General Meeting, Tuesday 3 April 1951 at 6 p.m.

The Seventh General Meeting of the Session 1950-51 will be held on Tuesday 3 April 1951 at 6 p.m. for the following purposes:

To read the Minutes of the Sixth General Meeting held on 20 February 1951.

To present the Royal Gold Medal 1951 to Mr. E. Vincent Harris, O.B.E., R.A. [*F*].

(Light refreshments will be provided before the meeting.)

Special General Meeting, Tuesday 3 April 1951

A Special General Meeting will be held on Tuesday 3 April 1951, at the conclusion of the Seventh General Meeting, for the purpose of confirming the following resolution passed at the Special General Meeting held on 6 March 1951:

Resolved.—That subject to the approval thereof by the Lords of His Majesty's Most Honourable Privy Council the regulations set forth in the printed document produced to this meeting and as amended at this meeting and for the purpose of identification signed by the Chairman thereof be made and adopted as the Bye-laws of the Royal Institute to the exclusion of and in substitution for all the existing Bye-laws.

By Order of the Council, C. D. SPRAGG,
Secretary.

Session 1950-51. Minutes V

At the Fifth General Meeting of the Session 1950-51, held on Tuesday 6 February 1951 at 6 p.m.

Mr. A. Graham Henderson, A.R.S.A., President, in the Chair.

The meeting was attended by about 280 members and guests.

The Minutes of the Fourth General Meeting held on 9 January 1951 were taken as read, confirmed and signed as correct.

The President delivered his address to architectural students, and Mr. R. E. Enthoven [*F*] read his review of the work submitted for the Prizes and Studentships, 1951.

On the motion of Mr. Lockhart W. Hutson, O.B.E. [*F*], President of the Royal Incorporation of Architects in Scotland, seconded by Mr. Kenneth M. B. Cross, M.A.Cantab. [*F*], Chairman of the Board of Architectural Education, a vote of thanks was passed to the President and Mr. Enthoven by acclamation, and was briefly responded to by them.

The presentation of prizes was then made by the President in accordance with the Council's Award.

The proceedings closed at 7.35 p.m.

Session 1950-51. Minutes VI

At the Sixth General Meeting of the Session 1950-51, held on Tuesday 20 February 1951 at 6 p.m.

Mr. A. Graham Henderson, A.R.S.A., President, in the Chair.

The meeting was attended by about 520 members and guests.

The Minutes of the Fifth General Meeting held on Tuesday 6 February 1951 were taken as read, confirmed and signed as correct.

The following members attending for the first time since their election were formally admitted by the President:

AS FELLOWS

A. D. Coward, M. G. Gilling, John Holman, Harold Jones, Eugene Rosenberg.

AS ASSOCIATES

Theodore Alexander, S. E. Aldridge, S. F. Amis, W. J. Appleton, Miss A. P. Armstrong, P. J. Ball, G. W. Ballard, J. M. Bargman, B. P. Beckett, J. R. Burden, E. C. Browning, R. G. W. Burgess, P. J. Choksey, R. G. R. Clark, A. O. Cole, E. G. Cole, A. L. R. Crick, B. R. S. Dalton, Miss B. T. Davison, D. S. Dawson, Miss B. S. Eley, Miss M. M. Elgood, G. R. Ellis, Miss S. A. Fairburn, John Falconer, D. H. Farrington, C. H. Felton, R. H. Fielding, D. W. Fletcher, G. H. Franklin, A. F. Gill, Gordon Godfrey, G. T. Gray, F. J. Guy, S. J. Hanchet, Miss U. C. Harding, T. E. F. Henry, B. M. Hewitt, L. E. Horlock, S. J. Howard, Miss E. M. Hyland, Michael James, L. J. Jelly, P. E. Jones, J. A. W. Killick, J. C. Lipley, P. W. Lucey, T. B. Mann, T. F. A. Manning, J. I. H. Marshall, K. W. Mellor, Miss P. H. Merrett, Michael Metcalfe, Miss Stephanie Morland, F. G. H. Murcutt, F. R. Mutch, William Nicholls, Miss R. M. Nuttall, C. J. Oliver, J. G. O'Neilly, M. J. Peto, Kimball Pollit, J. W. Porter, P. W. G. Powell, C. H. Prodgers, G. V. Richards, G. H. Ricketts, H. C. J. Ridgway, I. F. Rutherford, P. W. Scott, A. G. Sharp, Sidney Simmons, D. D. Smith, I. H. Smith, J. A. Spon, Miss J. C. Stanley, Miss J. D. Stickings, H. S. Stonard, Miss V. I. W. Telfer, B. K. Thomas, J. K. Thornton, F. H. Ward, M. J. Waterkeyn, J. L. Whitmore, M. C. Wilkinson, R. F. Williams, Miss J. D. Winter-Lotimer, D. J. Wortley, E. H. C. Wren.

AS LICENTIATES

Stanley Gidlowe, G. E. Harris, William McLean, E. M. Norman.

Mr. Wallace K. Harrison (Hon. Corresponding Member, U.S.A.) having read a paper on 'The United Nations Building in New York', a discussion ensued, and on the motion of Mr. Howard Robertson, M.C., A.R.A., S.A.D.G. [*F*], seconded by Mr. W. Tanzer, Deputy Director, London Information Centre, United Nations, a vote of thanks was passed to Mr. Wallace K. Harrison by acclamation, and was briefly responded to.

The proceedings closed at 7.27 p.m.

Session 1950-1951. Minutes VII

At a Special General Meeting held on Tuesday 6 March 1951 at 6 p.m.

Mr. A. Graham Henderson, A.R.S.A., President, in the Chair.

The meeting was attended by 38 members.

The President announced that the Special General Meeting had been called for the purpose of considering and, if thought fit, approving the Council's recommendations for the revision of the Bye-laws. The President presented to the meeting a signed copy of the pamphlet containing the proposed deletions and amendments, which had been circulated to the members with the February issue of the JOURNAL.

Mr. Martin S. Briggs, Hon. Secretary, having given a brief résumé of the steps taken by the Council in drafting and considering the proposed revisions, then moved the following Resolution:—

'That subject to the approval thereof by the Lords of His Majesty's Most Honourable Privy Council the regulations set forth in the printed document produced to this meeting and for the purpose of identification signed by the Chairman thereof be made and adopted as the Bye-laws of the Royal Institute to the exclusion of and in substitution for all the existing Bye-laws.'

The Resolution having been seconded by Mr. A. L. Roberts, Hon. Treasurer, a discussion ensued.

On the Council's recommendation the following amendment was suggested to proposed Bye-law 14:—

Insert the words 'entitled to be' before the existing words 'formally introduced'.

After discussion the proposed amendment was put to the meeting and was carried unanimously.

Mr. George Whitby, M.B.E. [*A*] moved and Mr. D. H. McMorran [*F*] seconded the following amendment to proposed Bye-law 23:—

Delete the second sub-clause in the last paragraph.

After discussion the proposed amendment was put to the meeting and declared lost by a large majority.

The general discussion having concluded, the following resolution was moved by Mr. Martin S. Briggs, Hon. Secretary, seconded by Mr. A. L. Roberts, Hon. Treasurer, and was carried by a large majority:

'That subject to the approval thereof by the Lords of His Majesty's Most Honourable Privy Council the regulations set forth in the printed document produced to this meeting and as amended at this meeting and for the purpose of identification signed by the Chairman thereof be made and adopted as the Bye-laws of the Royal Institute to the exclusion of and in substitution for all the existing Bye-laws'.

The Hon. Secretary announced that a Special General Meeting to confirm the amended Resolution would be held on Tuesday 3 April 1951.

The proceedings closed at 6.48 p.m.

R.I.B.A. Reception 18 May 1951

There will be a Reception at the Institute on Friday 18 May 1951 from 8.15 p.m. to midnight. The President and Mrs. Henderson will receive the guests in the Henry Florence Hall from 8.15 to 9 p.m. and there will be dancing from 9 p.m. until midnight.

Tickets are 15*s*. each. In the first place members will be restricted to one guest each but they may give the names of further guests for whom tickets will be supplied should it prove that accommodation will be available. Application for tickets (with remittance) should be made as early as possible. Evening dress, decorations and presidential badges will be worn.

Payment should be made by crossed cheque or postal order.

British Architects' Conference, Belfast, 30 May-2 June 1951

All members and Students of the R.I.B.A. and all members and Students of the Architectural Association and the Allied Societies are cordially invited to attend the conference. Full particulars and application form are enclosed with this issue of the JOURNAL.

It will greatly facilitate arrangements if those who propose to attend the conference will fill up the application form attached to the programme and return it to the Secretary R.I.B.A., as early as possible, and in any case *not later than 7 May*.

BOARD OF ARCHITECTURAL EDUCATION

The R.I.B.A. Final Examination, December 1950

The R.I.B.A. Final Examination was held in London, Birmingham, Leeds, Edinburgh, Manchester, Newcastle and Belfast from 29 November to 8 December 1950.

Of the 495 candidates examined, 242 passed as follows:

Passed Whole Examination	106
Passed Whole Examination, subject to approval of Thesis	77
Passed Part 1 only	58
Passed Part 2 only	1
	242

253 candidates were relegated.

The successful candidates are as follows:

Whole Examination

*Amor, John R.
Atkins, Joyce E. (Miss)
Austin, Thomas J. (Distinction in Thesis)
*Bailie, Clement R. J.
*Banks, Anthony E.
Bennett, Abraham F. (Distinction in Thesis)
*Benoy, Kenneth W.
Biernacki, Wlaslyslaw O.
*Binnington, Peter
Blastland, William C.
*Bolton, Gerald V.
*Boucher, Paul W.
Brewerton, Roland L. (Distinction in Thesis)
Bridges, Peter S. G.
*Brock, Frank
*Broome, John H.
Brown, Norman
Brudenell, Frederick A.
Bucholc, Zdzislaw
*Burden, Peter J.
*Castle, Victor
Chapman, Ronald F. (Distinction in Thesis)
*Chitty, Dennis W.
*Clark, Keith H. J.
*Clark, Philip A.
*Clarke, Peter O.
*Clayton, Maurice J.
Collins, John E.
Collins, Martyn
Cook, Anthony (Distinction in Thesis)
Cook, Beryl R. (Miss)
Cooke, Douglas
Cooper, Malcolm
*Corfield, John L.
*Courtenay, Royston R.
*Crawford, Ronald
Curry, William E.
Dart, Charles J.
*Denholm, Peter C.
Dodd, Leonard
*Dowling, Vincent
Dubash, Homi R.
Eaglen, Douglas (Distinction in Thesis)
Ellis, Leonard J.
Elter, Ferdinand
Emerson, John B.
*Entwisle, Norman
Feast, Douglas O.
Feeney, Martin G.
Fergusson, Godfrey W.
Fifield, Jean (Miss)
Forbes-Nixon, John D.
*Fothergill, Bennett W. F.
*Fox, Jack R.
*Franklyn, Donald H.
*Frankum, Albert C.
Gissing, Graham E. J.
*Goodrich, Alan R.
Gordon, Wallace
*Green, Alan
Green, Bernard G.
Guilmant, Peter R.
*Hall, Noel B. J.
Harrison, Henry P.
*Harrison, Roger C.
*Hastings, Barry C. C.
*Hatch, Colin
*Head, Roy L.
Hemingway, Peter G.
*Henderson, Geoffrey C.
Higgison, Frank R. S.
Hignell, Robert S.
Hill, Arthur H.
Hindle, Edgar
Hinton, Frederick C. H.
*Hobbs, Arthur F.
Hobbs, Geoffrey M.
*Hogarth, Derek J.
*Holt, Arthur P.
*Hope, Arthur H.
*Howarth, Stephan
Huckstepp, Michael J.
Hughes-Jones, Morris
*Hull, Denis E.
Humphreys, William A.
Hutchings, Lois M. (Miss)
Jaquet, Peter M.
Jepson, Frank C.
Johnson, John
*Jolley, Frederick C. E.
*Keen, Stanley
Kenmuir, Herbert E. (Distinction in Thesis)
*Kershaw, Albert
Law, Graham C. (Distinction in Thesis)
*Lawson, Kenneth E.
Leaker, Dudley R.
Leith, C. Raymond
*Lilley, Thomas L.
Logan, James H.
*Lord, Frank H.
Luxton, Edward H.
McDermott, Neil F. M.
McKnight, Keith R. B.
*Mansfield, Edward J. D.
Michalska, Alina (Miss)
Middleton, Roy
Millar, Ruth M. (Mrs.)
*Miller, Peter F. N.
Minter, Francis P.
Moore, Charles W.
Morfitt, Robert H.
Morgan, Geoffrey W.
*Morris, Alan W.
*Murgatroyd, Harry I.
*Muston, Kenneth A. H.
*Newman, Kenneth W.
Nursey, Dennis H. A.
O'Connor, Dennis J. L.
O'Gorman, James A.
Partridge, John A. (Distinction in Thesis)
*Pemberton, Roy
*Phillips, John
*Phillips, Roland D.
Pigott, Michael M.
Plumridge, Peter G.
Pomeroy, Joseph S.
Poray-Swinarski, M. W.
Preston, Alan M.
Preston, Philip E.
Price, Raymond M.
Przybylski, W. K.
Rainger, Richard C.
*Reid, Robert
*Reynolds, Alan J. S.
Rice, John A. P.
*Richards, Dennis F.
Riley, Eric H.
Rushworth, John N.
Sane, Sadashiv D.
*Shores, John E.
Shortman, John K.
*Simmonds, Roger G.
*Smart, Derek J.
*Smith, Derek
*Smith, Stanley A.
*Spence, John E.
Spencer, John V.
*Sperry, Ronald G.
*Spray, Geoffrey F.
Srinivasan, R.
Stanton, Brian J.
*Stockton, George M.
Stow, Derek A.
*Swallow, Richard D.
Tanner, Ivor J.
*Thomas, Geoffrey J.
*Thompson, Gordon H. F.
Thurston, Ronald
Trevallion, Bernard
Tritton, William H. (Distinction in Thesis)
Turner, Valerie M. (Miss)
Vale, David R.
Vane, Derek C. W.
Walker, Howard V. (Distinction in Thesis)
Ward, Sheila M. (Miss)
*Waters, George W.
Way, Anthony H. (Distinction in Thesis)
White-Gaze, Peter W. (Distinction in Thesis)
Whittenbury, June (Miss)
Wield, Douglas
*Wilburn, Dennis E.
Williams, Edward J. J.
Williams, Geoffrey G.
Williams, Glyn A.
*Williamson, John F.
*Wilson, Arthur D.
*Wilson, Harry
Wilson, Peter G.
*Winter-Baker, C. V.
*Wood, John M.
Wright, David C.
Yandell, Thomas J.
Young, Laurence M.

*Subject to approval of Thesis.

Part 1 only

Aitken, Audrey M. (Miss)
Ashworth, Stanley
Bailey, Geoffrey R. W.
Baker, Bernard
Barlow, Richard A.
Barnes, Clarence C.
Bateman, Geoffrey F.
Batory, Aleksander
Baxendale, Eric
Bird, Brian J.
Bogdanowicz-Rosco, A. M.
Booth, David
Bowman, Edward
Brown, Colin
Carter, Douglas W. G.
Clark, Charles B.
Clothier, Leonard E.
Counsell, Raymond H.
Davies, Ian
Elliott, Ian D.
Fallek, Harry C.
Fowler, Colin M.
Gallagher, John M.
Goldsmith, Geoffrey B.
Goslawski, Kazimierz
Hampton, Alan S.
Hayes, George A.
Haynes, Geoffrey H.
Hill, Reginald G.
Hodkinson, Gordon
Hudson, Frederick S.
Inman, John K.
Jones, G. Graham
Kay, Geoffrey
Martin, Reginald J.
Mould, Ronald F.
Pain, Maria Z. (Mrs.)
Parry, Edward C.
Pennell, Geoffrey R. J.
Perry, Victor J.
Pickford, Valerie A. (Miss)
Poole, Leonard E. J.
Reid, Donald A.
Rice, Maurice R.
Roberts, Cecil F.
Roberts, Eric N.
Sierakowski, K.
Smith, Kenneth P.
Squire, James M.
Stahl, Nicholas E.

Stone, Peter R.
Thorne, E. Gordon
Wakeham, Leslie A.
Watt, Donald M.
Wheeler, Maurice S. H.
Whitley, Robert J.
Winters, Eric R.
Wren, Walter D.

Part 2 Only

Taper, Norah (Miss)

The Special Final Examination, December 1950

The Special Final Examination was held in London, Birmingham, Leeds, Manchester, Newcastle, Edinburgh and Belfast from 29 November to 8 December 1950.

Of the 396 candidates examined, 131 passed: 21 in Part 1 only, 2 in Part 2 only.

265 candidates were relegated.

The successful candidates are as follows:

Whole Examination

Adams, John J.
Adams, Ronald W. R.
Allen, Geoffrey J.
Aylmer, Alexander L.
Baird, Joan M. (Miss)
Baker, Kenneth F.
Beevis, James H.
Beresford, James M.
Berry, Alfred L.
Berryman, Arthur H.
Birchett, Denis A.
Booton, Edward G.
Bor, Walter G.
Borley, Stanley E.
Bottle, Frederick R.
Brown, David T.
Brown, Victor A.
Buttress, Frederick A.
Carmichael, John
Clark, Richard
Clarke, Edward J. F.
Clater, Frank S.
Cobbett, Martin L.
Courtenay, John W.
Crawford, Jack L.
Cruickshank, George
D'Almeida, Philip M.
Darch, Peter J.
Davies, William A.
Devonport, Francis D.
Dollery, Harry C.
Downs, Leslie F. J.
Duck, William R.
Emmett, Kenneth R.
Enevoldson, Leslie I.
Evans, Byron J. M.
Farley, Colin P.
Fenton, Thomas B.
Firth, Cedric H.
Follett, Stanley J.
Foxton, Reginald J.
Francis, Leslie W.
Fuller, James S. W.
Gardner, Peter M.
Geeraerts, Arthur A.
Greaves, Ronald A.
Green, Harold E.
Heap, James L.
Henrickson, Laurence A. K.
Herrmann, Erich
Holmes, Albert B.
Howlett, James C.
Kent, Stanley G.
Kirk, Arthur G.
Kitching, Percy
Lichtig, Szulim
Linford, Owen F.
Lucas, Ronald J.
Luckes, Durrant G.
Macdonald, Calum
McCusker, John T. F.
McDowell, Thomas J.
Markham, Isidore
Mathers, George A. J.
Mhatre, Madhukar S.
Misseldine, Denys
Moore, Colin A.
Morgan, Raymond C.
Murrin, Kenneth G.
Myers, Edgar L.
Nelson, Niall D.
O'Connell, Dermot E.
Oldrey, Mary E. O. (Miss)
Outram, Jack
Ovenden, Ronald J.
Panter, Paul J. H.
Parker, Joseph E.
Perry, Aubrey A. J.
Pierce, William I.
Prior, William J.
Richards, Norman H.
Robertson, Richard G.
Ruddle, John J. P.
Rycroft, Peter G.
Samson, David R.
Saunders, Bertie J.
Shields, Percival H. A.
Simpson, Charles H.
Smith, Ernest F.
Southwood, Robert C
Sturgeon, Josiah J.
Tarling, Charles
Taylforth, Jack G.
Taylor, Leonard
Templeton, Robert
Thompson, Kenneth J.
Thorne, Harold L.
Topping, James
Utting, Russell D.
Vadgama, L. C.
Waddington, Basil A.
Waller, Ernest E.
Wightman, Harold
Wills, Francis B.
Wilson, Robert A.
Wong, Ting T.
Woolley, Leonard J. B.
Zakrzewski, Zygmunt M.

Part 1 Only

Barclay, Robert L.
Brimley, Leonard W.
Bushell, Herbert S.
Cairns, James G. H. D.
Christie, Andrew G.
Coleman, Thomas H. de W.
Fiske, Thomas N.
Ford, John R.
Gledhill, John M.
Hurst, Miriam (Mrs.)
Jamouneau, Mary (Miss)
Montgomery, Joseph
Noble, Eric R.
Packer, Denis C.
Petit-Jean, Gerald M.
Piper, Percy F.
Sanderson, Peter A. C.
Selves, Leslie W.
Short, Arthur
Walker, Stanley C.
Wilmot, John W.

Part 2 Only

Edwards, John H.
Wilson, John H. A.

The following candidates have also passed the Special Final Examination:

Ainsworth, Ronald A.
English, Anthony
Firman, Kenneth G.
Hampton, Peter
Hastilow, Noel
Mobbs, Ronald H.
Wylie, Donald W.

The Examination in Professional Practice for Students of Schools of Architecture Recognized for Exemption from the R.I.B.A. Final Examination

The Examination was held in London, Manchester, Leeds and Edinburgh on 5 and 8 December 1950. Of the 15 candidates examined, 8 passed and 7 were relegated.

The successful candidates are as follows:

Greenwood, Eric
Linscott, Anthony H. M.
McGuffie, David K. P.
Outhwaite, Norman H. G.
Roberts, Joseph B.
Robinson, Brian H.
Thomson, Janet (Miss)
Watkinson, Peter W.

COMPETITIONS

Competition for a Technical College, Poole

The Dorset County Council invite architects to submit designs in competition for a College of Further Education at Poole, Dorset.

Assessors: Mr. Julian Leathart [*F*] (nominated by the R.I.B.A.), Mr. S. A. W. Johnson-Marshall, B.Arch. [*A*] (Chief Architect, Ministry of Education), Mr. H. E. Matthews [*F*] (County Architect, Dorset), Mr. J. Haynes, M.A. (County Education Officer, Dorset), Mr. H. J. Shelley, O.B.E. (Chief Inspector, Ministry of Education).

Premiums: £1,000, £500, £300.

Last day for submitting designs: 1 October 1951.

Last day for submitting questions: 30 April 1951.

Conditions may be obtained on application to the County Education Officer, County Hall, Dorchester, Dorset.

Deposit £1 1*s.* made payable to the County Treasurer.

Competition for the Herzl Memorial, Jerusalem

The Executive of the World Zionist Organization, in conjunction with the Board of Trustees for Herzl's Tomb, invite Jewish architects, sculptors and planners throughout the world to submit designs in competition for the proposed Memorial to Herzl's Tomb, the park and the traffic lay-out of the immediate vicinity.

(*This competition has been restricted to members of the Jewish faith in view of the religious character of the project.*)

Assessors: Mr. B. Locker, Mr. A. Berachyahu (Engineer), Dr. L. Lauterbach, Mr. J. Metrikin (Architect), Mr. J. Pinkerfeld (Architect), Prof. Y. Ratner (Architect), Mr. H. Rau (Architect), Mr. J. Weitz and Mr. N. J. Aslan, A.M.T.P.I. [*A*].

Premiums: I£1,200, I£900, I£600 and additional premiums totalling I£2,300.

Last day for submitting designs: 21 June 1951.

Conditions may be obtained on application to the Secretary, The London Committee, Herzl Memorial, 77 Great Russell Street, W.C.1.

Deposit £2 2*s.*

Competition for a Festival Hall, Wirral

The Wirral Urban District Council invite architects to submit designs in competition for a Festival Hall to be erected at Heswall, Wirral, Cheshire.

Assessor: Mr. P. Garland Fairhurst, M.A. [*F*].

Premiums: £500, £350, £250.

Last day for submitting designs: 28 April 1951.

Conditions may be obtained on application to Mr. Wm. F. Roberts, Clerk to the Council, Council Offices, Heswall, Wirral, Cheshire.

Deposit £2 2*s.*

Festival of Britain 1951: Committee for Northern Ireland

(*a*) *Competition for Design of Hotel.*

(*b*) *Competition for Design of a Recreation Centre.*

The Royal Society of Ulster Architects in association with the Council for the Encouragement of Music and the Arts (Northern Ireland) invite members and Students of the R.I.B.A. and its Allied Societies and/or Registered Architects *born or normally resident in Northern Ireland* to submit designs in competition for:

(*a*) A Seaside Hotel. Premiums: £200, £100, £50.

(*b*) A Recreation Centre. Premiums: £100, £50, £25.

Assessor: Mr. Desmond FitzGerald, B.Arch., M.R.I.A.I., A.M.T.P.I. [*A*].

Last day for submitting designs: 31 March 1951.

Although it is unlikely that these subjects will be built they have been carefully selected to meet a known need.

Separate schedules of conditions are available in respect of each competition, and these may be had on application to the Hon. Secretary, Royal Society of Ulster Architects, 7 College Square North, Belfast, enclosing a deposit of £1 1*s.* in respect of each schedule of conditions required.

Proposed New Technical College, South Shields

The South Shields County Borough invite architects of British nationality to submit designs in open competition for the proposed Marine and Technical College buildings to be erected at South Shields.

Assessor: Mr. S. W. Milburn, M.B.E., M.C., T.D. [*F*].

Premiums: £500, £250, £100.

Last day for submitting designs: 21 July 1951.

Conditions may be obtained on application to Mr. Harold Ayrey, Town Clerk, Town Hall, South Shields.

Deposit £2 2*s.*

COMPETITION RESULT:

'The Builder' Low-cost Housing Competition

1. Mr. J. L. Womersley, A.M.T.P.I. [*A*] and Mr. G. Hopkinson, B.Arch., A.M.T.P.I. [*A*].
2. Messrs. Edward Narracott and Associates [*A*/*L*].
3. Mr. H. Underhill Diplock.

Hon. Mention: Mr. A. G. Goodair [*A*]; Messrs. Johnson and Crabtree [*F*/*F*]; Mr. Howard N. Michell [*A*] and Mr. T. Snow.

Highly Commended: Mr. Norman R. Minter; Mr. John W. Poltock [*A*]; The Hon. R. de Yarburgh-Bateson, M.A., A.A.Dipl. [*A*].

ALLIED SOCIETIES

Changes in Officers and Addresses

Ontario Association of Architects. President, Mr. Earle L. Sheppard, 57 Queen Street West, Toronto, Ontario. Vice-President, Mr. G. S. Adamson, 906 Yonge Street, Toronto. Treasurer, Mr. H. G. Hughes, Hospital Design Division, Dept. of National Health, Ottawa, Ontario. Secretary, Mr. J. D. Miller, 1323 Bay Street, Toronto.

Architectural Institute of British Columbia. President, Mr. P. M. Thornton, 1664 West Broadway, Vancouver, B.C. Vice-President, Mr. S. P. Birley.

Royal Institute of the Architects of Ireland. President, Mr. J. M. Fairweather. Vice-President, Mr. E. D. Buckley. Hon. Secretary, Mr. D. B. O'Rourke. Hon. Treasurer, Mr. J. P. Alcock.

West Yorkshire Society of Architects: Annual Dinner

A most successful Dinner and Dance was held by the West Yorkshire Society of Architects at the Queen's Hotel, Leeds, on 30 January, when its members under the Presidency of Mr. C. E. Horsfall [*L*] entertained over 200 guests. Among the principal guests were: The Lord and Lady Mayoress of Leeds (Alderman F. H. O'Donnell, J.P., and Mrs. O'Donnell), the President of the R.I.B.A. (Mr. A. Graham Henderson, A.R.S.A.), and Mrs. Henderson, the Lord and Lady Mayoress of Bradford (Alderman Alton Ward, J.P., and Mrs. Ward), the Mayor and Mayoress of Wakefield (Councillor L. S. Blakeley and Councillor Mrs. E. C. Blakeley), the Mayor and Mayoress of Halifax (Councillor F. Sharp, J.P., and Mrs. Sharp), the Mayor and Mayoress of Harrogate (Alderman C. E. Whiteley, J.P., and Mrs. Whiteley), and the Presidents of the York and East Yorkshire Architectural Society and the Manchester Society of Architects, the Chairmen of the Yorkshire Branches of the Royal Institution of Chartered Surveyors, Institution of Structural Engineers, and the Institution of Civil Engineers; also the Chairman of the Northern Division of the Town Planning Institute.

The Toast of the R.I.B.A. coupled with the West Yorkshire Society of Architects was proposed by the Lord Mayor of Leeds, and responded to by the President of the R.I.B.A. The Toast of 'Our Guests' was proposed by the President of the West Yorkshire Society of Architects, and responded to by the Lord Mayor of Bradford.

Mr. Norval R. Paxton [*F*], Vice-President of the R.I.B.A., spoke briefly on the Architects' Benevolent Society, and a tombola was later held during the dancing in aid of the Centenary Appeal.

Sheffield, South Yorkshire and District Society of Architects and Surveyors: Annual Dinner

A very successful dinner dance was held at the Royal Victoria Hotel at Sheffield on 31 January, and was attended by some 260 members and guests, including the President of the R.I.B.A., Mr. A. Graham Henderson, A.R.S.A. and Mrs. Henderson, the Master and Mistress Cutler (Mr. and Mrs. G. Wilton Lee), Mr. C. H. Aslin, County Architect of Hertfordshire, and Mrs. Aslin.

The toast of the R.I.B.A. was proposed by Mr. R. Cawkwell, President of the Society, who commented on the fact that although Sheffield was the sixth city in the kingdom and famous all the world over for its steel and cutlery, it had not earned such renown for its architecture. He hoped that local architects would work together with vigour in order that new buildings—when they could be erected—should be of the best in the country.

The President of the R.I.B.A., Mr. A. Graham Henderson, in reply to the toast, speaking of the work carried out by the R.I.B.A., said the value of such work depended on the Institute's representative character. He thought that its work could be summed up briefly as guiding the training of architects, making them behave to each other and the public, helping them to put their foot on the ladder, linking them with those whose future was bound up with their work, keeping bright the lamp of their art whilst serving the community, and finally rounding them off with a neat obituary. Mr. Henderson stressed the fact that building restrictions and economies were a challenge to architectural skill.

The toast of 'The Guests' was proposed by Mr. S. E. Minns [*L*], Vice-President of the Society, and replied to by Mr. C. H. Aslin [*F*], County Architect of Hertfordshire.

Hampshire and Isle of Wight Architectural Association: Annual Dinner

Mr. H. S. Sawyer, M.C. [*F*], President of the Association, and Mrs. Sawyer, welcomed a record attendance at the annual dinner at the Polygon Hotel, Southampton, on 2 February.

Following the loyal toast, the President proposed 'Local Government Authorities in Hampshire and the Isle of Wight.' He said that most local authorities were unpopular with the unthinking ratepayer, but he reminded his audience that local authorities took care of them all their lives, and that the buildings they erected for this purpose—clinics, schools, libraries, hospitals, etc.—could not be built until the architects designed them. He spoke of the keenness and enthusiasm of the staff and officials of local authorities.

The Mayor of Southampton, Alderman G. H. Barendt, responding, said local authorities had in these days a most difficult part to play in striking a balance between what they would like to do and what the ratepayers would like them to do. The path of the local authority architect today must necessarily be strewn more with thorns than with roses; and it was not the fault of the architectural profession that architectural monuments today would not bear comparison with those of centuries past. It was one reflection of the altered sense of values that applied to things of beauty in these days.

The Mayor of Winchester, replying, strongly supported Alderman Barendt's remarks, and alluded to the valuable voluntary work of members of the Association on the architectural panels, for which local authorities were most grateful.

The Duke of Wellington, F.S.A. [*Retd. F*], Lord Lieutenant of the County of Hampshire, proposed the toast 'The R.I.B.A. and its Allied Societies,' and said that the R.I.B.A., though venerable, was perpetually young. He reminded his audience that the more people were 'in fashion' the sooner were they out of it, and spoke of the mistakes of so-called 'functionalism'.

Mr. John L. Denman [*F*], Vice-President R.I.B.A., conveyed to the gathering the best wishes of the President, and referred to the growth in the Institute's activities. He stressed the importance of maintaining its cultural aspect and warned members against becoming submerged beneath modern needs of legislation and Governmental requirements. The affiliation with the Allied Societies, he said, had done much to stimulate the interest of members in the work of the Institute, which was still very much in its infancy, and he suggested that the excellent prospect could be still further increased by joint meetings.

Northern Architectural Association: Annual Dinner

The annual dinner and dance of the Northern Architectural Association was held in the Royal Station Hotel, Newcastle-upon-Tyne, on 16 February, and was attended by about 200 members and guests. The President R.I.B.A., Mr. A. Graham Henderson, A.R.S.A., and Mrs. Henderson were among the guests.

Mr. P. Clive Newcombe [*F*], President of the Association, who presided, proposed the toast of 'The Municipal Authorities of our Province', which was responded to in a humorous speech by the Lord Mayor of Newcastle-upon-Tyne, Alderman N. B. Chapman, J.P. The toast of 'The Royal Institute of British Architects and Allied Societies', which was proposed by Mr. T. M. Harbottle, C.B.E., M.C., was responded to by the President R.I.B.A.; and that of 'Our Guests', proposed by Mr. D. McIntyre [*A*], Vice-President of the Northern Architectural Association, was responded to by Mr. A. Newton Thorpe [*F*], President of the York and East Yorkshire Architectural Society.

The presence of the President and Mr. C. D. Spragg, C.B.E., Secretary R.I.B.A., was greatly appreciated, and the whole function was admirably organized by a committee under the Honorary Secretary, Mr. C. H. Errington, T.D. [*L*].

Berks, Bucks and Oxon Architectural Association: Annual Dinner

The Annual Dinner-Dance of the Association was held on 21 February at the Great Western Hotel, Reading. The 150 members and guests were received by the President of the Association, Mr. T. Talford Cumming [*F*] and Mrs. Cumming.

The Toast of the Royal Institute was proposed by the Mayor of Reading, who pointed out the desirability of more architects entering into public life in view of the many qualifications they had to offer. The Toast was responded to by the President R.I.B.A., Mr. A. Graham Henderson, A.R.S.A., who said he was pleased to note that the Government realized the solution to the housing problem was not the erection of makeshift dwellings; quality as well as quantity was a consideration.

Mr. E. R. Bowyer, President of the Southern Counties Federation of Building Trades Employers, proposed the Toast of the Association, which was responded to by the President of the Association. Mr. T. L. J. Chamberlain [*F*], Chairman of the Berkshire Society of Architects, proposed 'The Guests', to which Mr. A. L. Roberts [*F*], Hon. Treasurer R.I.B.A., replied.

Speeches were kept to the minimum to allow the dance to begin at approximately 9 p.m. Dancing continued until 1 a.m.

GENERAL NOTES

Summer Course in Swedish Architecture

A special summer course in Swedish Decorative Art and Architecture is to be held in Stockholm from 13 to 25 August. It is being arranged jointly by three bodies, one of which is the Svenska Arkitekters Riksförbund (The National Association of Swedish Architects). The course is to consist of lectures, visits to buildings and excursions. Although the course is international in scope, the language used in all lectures will be English. Of special interest to architects will be lectures on *Swedish Architecture of Our Time*, *The Education of Architects in Sweden*, *Housing Planning and Types of Living Accommodation*, *Housing Policy and Town Planning Problems*, and *The Public Environment*.

The fee for the course is 250 Swedish crowns, plus 125 crowns for meals included in the

course. The cost of accommodation and other meals can be calculated at 200 crowns. The total at the present rate of exchange is about £40. Full particulars can be obtained from The Swedish Institute, 49 Egerton Crescent, London, S.W.3.

Architectural History: Oxford Summer School From 21 July to 4 August 1951 students of architecture will have an opportunity to study and measure examples of historic English Architecture in Oxford and to live in college at Magdalen. During the course distinguished architects and specialists will lecture on specific aspects of Oxford buildings. There will be tours to the Cotswolds and to Blenheim Palace.

As the Course forms part of the official Festival of Britain programme of Oxford, a number of places will be reserved for members and students of the architectural profession from overseas.

Details and application forms can be obtained from the Joint Honorary Secretaries of the Organizing Committee: Mr. E. Lassetter [*L*], Hon. Secretary of the Berks, Bucks and Oxon Architectural Association, Somerset House, Reading (Tel. 60076), and Mr. J. Brosgall, Secretary, Southern Regional Council for Further Education, Shire Hall, Reading. (Tel. 3081.)

R.I.B.A. Golfing Society: Programme for 1951 Season

The following fixture list has been arranged for the R.I.B.A. Golfing Society:

MATCHES

Tuesday 3 *April*. The Building Alliance G.S. at Royal Wimbledon G.C.
Thursday 10 *May*. The Institution of Civil Engineers G.S. at R.A.C. Woodcote Park, Epsom.
Tuesday 12 *June*. The London Master Builders' Association G.S. at West Hill G.C., Brookwood, Surrey.
Wednesday 18 *July*. The Royal Institution of Chartered Surveyors G.S. at New Zealand, West Byfleet, Surrey.

MEETINGS

Wednesday 25 *April*. Meeting at St. George's Hill G.C., Weybridge. The Sullivan Trophy.
Saturday and Sunday 7 *and* 8 *July*. Week-end meeting at Royal Cinque Ports G.C., Deal, Kent. The President's Prize, The Captain's Prize, The Allensby Bowl. Accommodation provisionally booked at the Royal Hotel, Deal, from Friday night until Monday morning.
Thursday 27 *September*. Meeting at Fulwell G.C., Hampton, Middlesex. The Selby Cup; Annual General Meeting.

In view of the visits to these famous courses it is hoped that many more golfing members of the Institute will join the Society this year. The annual week-end meeting at Deal should be a great success on these fine links.

A provincial member has suggested that matches be arranged between the London group of members and sides formed in provincial towns at a course or links conveniently situated. The Hon. Secretary will be glad of any proposals.

The subscription is at present only 10*s*. per annum, payable to the Hon. Treasurer of the Society.

OFFICERS FOR 1951

President: Sir Giles Gilbert Scott, O.M., R.A., Past-President, R.I.B.A.
Captain: H. St. John Harrison [*F*].
Committee: W. R. F. Fisher [*F*], John Grey [*F*], A. H. Watkins [*L*], Alan D. Scott [*A*].
Hon. Treasurer: G. Felix Wilson [*L*], 4 Russell Gardens, Kensington, W.14. PARk 5610.
Hon. Secretary: Eric H. Firmin [*A*], 10 Manchester Square, W.1. WELbeck 2849.

Notes from the Minutes of the Council

MEETING HELD 6 FEBRUARY 1951

Appointments

Ministry of Local Government: Advisory Committee on Model Building Bye-laws: R.I.B.A. Representative: Mr. C. S. White [*F*].

National Register of Electrical Installation Contractors: R.I.B.A. Representative on Registration Board: Mr. C. H. Perkins [*A*] re-appointed.

B.S.I. Committee HIB/22—Copper Expansion Joint Strips for Concrete: R.I.B.A. Representative: Mr. F. H. Heaven [*A*], in addition to Mr. R. M. Betham [*A*], who is already serving.

Assistant Secretaryship: The Council appointed Mr. Robert William Martin Orme as Assistant Secretary in succession to Mr. G. E. Marfell.

Northern Architectural Association: Revision of Rules: The Council gave formal approval to a number of minor amendments to the rules of the Northern Architectural Association.

International Union of Architects: Second Annual Congress: British Representatives: The Secretary reported that the International Union of Architects had made arrangements to hold the second Annual Congress in Morocco in September 1951. The Assembly would be at Casablanca from 21 to 23 September, and the Congress at Rabat from 23 to 30 September.

On the recommendation of the British Committee, the Council approved the appointment of Mr. Anthony M. Chitty [*F*] and the Hon. Godfrey Samuel [*F*] as the British delegates.

Membership: The following members were elected: As Fellows, 5; as Associates, 56; as Licentiates, 6.

Students: 338 Probationers were elected as Students.

Applications for Election: Applications for election were approved as follows: *Election* 3 *April* 1951: As Honorary Fellow, 1; as Honorary Associates, 2; as Fellows, 6; as Associates, 76; as Licentiates, 6.

Application for Reinstatement: The following application was approved: As Licentiate: Leslie Charles Stuart.

Resignations: The following resignations were accepted with regret: Gordon Leslie Broad [*F*], Albert Frederick Warth Reading [*F*], Robert Stanley Dean [*A*], Ernest Elias Fowler [*A*], Alfred John Wilton Garrett [*A*], Mrs. Muriel Mennell [*A*], Mrs. Jane Anderson Rutherford [*A*], Henry Wormald [*A*], Clive Ewart Ardley [*L*], William Edgar Bickers [*L*], Alexander Neilson Clark [*L*], John McNeill [*L*], Edgar Percy Morgan [*L*], Richard Morton Rigg [*L*], Frederic Arthur Broad [*Retd. L*].

Applications for Transfer to Retired Members' Class under Bye-law 15: The following applications were approved:

As Retired Fellows: Charles Walter Clark, Robert Kitching Ellison.

As Retired Associates: Horace James Ash, Bertrand Frederick Brueton, Silvester Joseph Trinity D'Souza Castellino, Frank George Richardson.

As Retired Licentiate: John Arthur Yells.

Obituary: The Secretary reported with regret the death of the following members: Leonard William Barnard [*F*], Herbert Tudor Buckland [*F*]. Mr. Buckland was a past Vice-President. He was also the first Chairman of the Allied Societies' Conference and a past President of the Birmingham and Five Counties Architectural Association, and had served for very many years on the Council and the following Committees: Executive, Conditions of Contract, R.I.B.A. Premises, New Building, Practice, Art, Science, Unification, Housing Fees, Fellowship Drawings, Royal Gold Medal, Selection and General Purposes, Charter and Bye-laws, Official Architecture and Professional Conduct, and as an Advisory Member of the Board of Architectural Education. Francis Hayward Floyd [*F*], Ebenezer James MacRae [*F*], John Slack [*F*], William Tweedy [*F*], Alfred Booth [*A*], Frederick John Bayman Watkins [*A*], John Reginald Best [*Retd. A*], Joseph Mathison [*L*], John Thomas Blackwell [*Retd. L*], William Kerr [*Retd. L*].

By resolution of the Council the sympathy and condolences of the Royal Institute have been conveyed to their relatives.

A.B.S. Centenary Appeal

We give here a further list of donations received by the Architects' Benevolent Society in answer to the Centenary Appeal. The total at 1 March was £6,418 17*s*. 2*d*.

John Hiner, £1 1*s*.; D. H. Butt, £10; D. Fletcher, £2 2*s*.; Gateley and Parsons, £3 3*s*.; Dr. Ronald Bradbury, £2 2*s*.; John Murray, £1 1*s*.; S. F. Ransom, £1 1*s*.; W. Veevers, 10*s*.; W. B. Colthurst, £10; Arthur Layfield, 10*s*. 6*d*.; B. F. Leach, £1; P. A. Goodhew, £1; F. T. Winter, 10*s*. 6*d*.; W. R. H. Taylor, £1; Pallett and Price, £2.

Royal Institute of the Architects of Ireland: Mr. and Mrs. W. Cantwell (£2 2*s*.), H. N. Goodbody (£1 1*s*.), Messrs. Ellis and Scally (subscription) (£1 1*s*.), Messrs. Ellis and Scally (donation) (£2 2*s*.), R. H. Dowling (£1 1*s*.), R. L. Burgess (£1 1*s*.), Buchan, Kane and Smith (£2 2*s*.), Anon. (£1), £11 10*s*.

M. H. Bradley, £1 1*s*.; Col. Cart de Lafontaine, £21; H. Winbourne, £5 5*s*.; C. F. Symons, £1 1*s*.; Darcy Braddell, £3 3*s*.; L. B. Budden, £3 3*s*.; K. Travis, £1 1*s*.; S. G. Hayter, 10*s*. 6*d*.; Miss D. O. Cundall, 10*s*.; C. Johnston, £2 2*s*.; W. S. A. Cordon, £5 5*s*.; T. J. Tatham, £1 1*s*.; H. E. Watkinson, £1 1*s*.; C. J. Goodman, £1; B. T. R. Wiggins, £1 1*s*.; R. W. Pite, £2 2*s*.; A. G. W. Ogilvie, £5; Hastings and Bexhill Group, S.E.S.A., £6 1*s*. 7*d*.; A. J. Butcher, £2 2*s*.; W. McAndrew, £1 1*s*.; P. Wright, £1 1*s*.; Tunbridge Wells Chapter, Maidstone Group, S.E.S.A., £1 14*s*.; D. A. Parker, 5*s*.; I. A. Stark, £2 2*s*.; G. J. Hawkins, 10*s*.; Northern Architectural Association, £105; J. M. Angus, £3 3*s*.; Geo. H. Gray and Partners, £10 10*s*.; L. J. Couves and Partners, £8 8*s*.; W. Davey, 10*s*. 6*d*.; H. C. W. Strickland, £2 2*s*.; S. C. Percival, £1; Thomas Mitchell, £3 3*s*.; C. S. Kimpton, £1 1*s*.; R. A. Reid, £50; W. Geoffrey Harper, £5 5*s*.; H. R. Bird, £5 5*s*.; Leonard Chignall and Son, £1 1*s*.; Charles Sykes, £2 2*s*.; J. S. Baldwin, £2 2*s*.

Essex, Cambridge and Herts Society of Architects, Hertfordshire Chapter: H. K. Ablett (£1 1*s*.), S. F. W. Ackerman (10*s*.), A. B. Punter (2*s*. 6*d*.), J. L. Caldwell (£1 1*s*.), H. J. Coates (£1 1*s*.), Miss D. M. Coates (5*s*.), H. G. Coulton (£1 1*s*.), J. W. T. Dakin (10*s*.), G. H. Herring (£2 2*s*.), F. W. Knight (£5), P. V. E. Mauger (£1 1*s*.), M. E. Meacher (10*s*.), H. J. Merriman (£1 1*s*.), G. Newell (3*s*. 6*d*.), H. Unsworth (£1 1*s*.), D. M. Wilson (5*s*.), £1615*s*.

Notts, Derby and Lincoln Architectural Society, Notts: Myles White (£1 1*s*.), H. H. Goodall (£3 3*s*.), Sheppard, Lockton and

Saunders (£3 3s.), P. J. Bartlett (£1 1s.), F. W. C. Gregory (£1 1s.), £9 9s.

Proceeds of Centenary Ball, £428 9s. 11d.

Liverpool Architectural Society: Professor L. B. Budden (£1 1s.), H. J. Rowse (£1 1s.), G. G. Hearnden (10s.), J. M. Hatton (10s.), Miss J. B. Gnosspelius (10s. 6d.), £3 12s. 6d.

Frederick Barber, £3 3s.; R. Norman Mackellar, £5; W. M. Rankin, £1 15s.; G. E. Burgess, £1 1s.; H. B. Smith, £10; S. K. Wills, £1 1s.; J. Leathart, £12 7s.; M. C. Jarrett, 10s. 6d.

Suffolk Association of Architects: West Suffolk County Architects' Office (£2 2s. 6d), J. F. Adams (11s.), R. Woodhouse Beales (£1 1s.), W. Philp (10s.), H. C. O'Neill (5s.), Arthur Welford (£3 3s.), A. V. Lobban (10s.), J. Butters (£1 1s.), P. Goodman (5s.), B. W. J. Olley (£1 1s.), H. G. Tuffley (10s.), L. J. Grigg (10s.), H. W. Lovell (£1 1s.), A. W. Field (10s. 6d.), Frank Dunnett (10s. 6d.), Suffolk Association of Architects (£15 15s.), A. E. Pearce (£1 1s.), Harold F. Walker (£2 2s.), £32 9s. 6d.

Anon. (West Hartlepool, Co. Durham), 2s. 6d.; R. W. Foreman, £1 1s.; D. S. Pearce, £1 1s.; Sheffield, S. Yorks and District Society of Architects and Surveyors, £100; T. C. Ovenston, £1 1s.; J. M. Davies, 5s.

Hants and Isle of Wight Architectural Association, Western Chapter: Messrs. Jackson and Greenen (£5 5s.), A. E. O. Geens (£5 5s.), Lionel Gregory (£3 3s.), A. H. Sheffield (£2), Peter Weldon (5s.), Bryan Docherill (10s. 6d.), Max G. Cross (£1 1s.), G. A. Barnes (5s.), Ronald H. Sims (£1), P. J. Coles (£1 1s.), O. R. Mulley (£2 2s.), S. Arthur Walford (£2 2s.), R. Gent (£1 1s.), T. H. Merrifield (10s.), A. Croot (£3 3s.), L. Magnus Austin (£3 3s.), B. H. Thompson (£1), W. G. Seaton (£3 3s.), Irving Todd (£2 2s.), L. A. Hurley (5s.), Mathews and Rose (£2 2s.), A. J. Seal and Partners (£5 5s.), Mr. and Mrs. C. H. Fowler (£1 1s.), Geoffrey G. Paterson (10s.), E. J. Bailey (6s. 6d.), Roy Hopkins (10s.), W. Hinton Stewart (£2), H. G. Jacobs (£2 2s.), J. E. Eastwood (£1), R. A. Phillips and Partners (£5 5s.), Kenneth Marsh (£2 2s.), F. C. Denley and Kenneth King (£2 2s.), Peter Crockford (10s.), W. J. Mountain (£5 5s.), H. E. Damen (£2 2s.), W. J. Dacombe and Son (£4 4s.), Philip Hardy (£2 2s.), A. T. Marsh (£1 1s.), D. A. Bull (£1 1s.), W. M. T. Parsons (£1), W. S. Rumsley (£3 3s.), W. B. Stonebridge (10s.), C. Hooper (£1), L. S. Youngman (£2 2s.), D. H. Read (£2), W. Halkerston (£1 1s.), John Burton (£1 1s.), Gordon Sutcliffe (£3 3s.), £93 17s.

The Expanded Metal Co. Ltd., £26 5s.; T. A. Keenan, 6s. 8d.; Norman Keep, £1 1s.

West Essex Chapter: Essex, Cambridge and Hertfordshire Society of Architects: Collection at Chapter Meeting (15s. 6d.), D. B. Connal (£2 2s.), £2 17s. 6d.

W. D. Churchill, £1 1s.; Miss S. L. P. Linssen, £1; R. S. Horne, 10s. 6d.; H. B. Chandler, £1 1s.; S. W. Parker, £1 1s.; Drury and Gomersall, £5 5s.; B. C. King, £1 1s.; Stanley Bragg, £5 5s.; B. T. Whincap, £1; E. Craven, £1 1s.; W. T. Steilberg, £5; Welsh School of Architecture Students' Club, 11s.; J. A. Skovgaard, £2 10s.; F. W. Smith, £1 1s.; G. P. K. Young and Son, £2 2s.; G. H. Yeoman, £1; Vincent Burr, £10; E. H. Appleton, £5 5s.; J. W. Chapman, 5s.; John E. Beardshaw and Partner, £5; R. F. Chilton, 5s. 6d.; Donald Hamilton, Wakeford and Partners, £5; F. G. Baker, 10s. 6d.

Hants and Isle of Wight Architectural Association, Central Branch: W. J. Donger (£3 3s.), R. Barrington Smith (10s. 6d.), Miss H. M. Pape (10s.), Gutteridge and Gutteridge (£10 10s.), Anon. (£10), Brian Sutcliffe and Partners (J. B. Brandt and F. Orman) (£5 5s.), E. M. Galloway (£5), Ernest Bird (£5 5s.), Fowler and Grove (£6 6s.), W. F. Hedger (£2 2s.), Arthur E. T. Mort and Partners (£2 2s.), H. R. Hayes (2s. 6d.), G. Raymond (£2 2s.), T. F. Thomson (10s. 6d.), Gutteridge and Gutteridge's architectural staff (£4 5s.), Green and Rudgley (£3 3s.), Alywin and Kemp (£3 3s.), C. C. Jackson (£1 1s.), P. R. Sawyer (£2 2s.), Collection at Central Chapter Meeting of Hants and Isle of Wight Association of Architects (£2 2s.), Staff of H. S. Sawyer and Sons (£1), J. B. Brandt (£1), A. J. Harding (£2 2s.), £73 6s. 6d.

Membership Lists

ELECTION: 6 MARCH 1951

The following candidates for membership were elected on 6 March 1951:

AS FELLOWS (2)

Twizell: Robert Percival Sterling [*A* 1900], Vancouver, B.C., Canada.

And the following Licentiate who has passed the qualifying Examination:

Tomlin: Kenneth John, Seychelles, Indian Ocean.

AS ASSOCIATES (35)

Anderson: Jean Mary (Miss), Sydney, N.S.W., Australia.

Armstrong: Frederick Clarence, Rosanna, Victoria, Australia.

Banpel: Vithal Bhumayya, Bombay, India.

Beckett: Frederick Harrison, Suva, Fiji.

Beiers: George Harold, Dip.Arch. (S.T.C.), Toorak, Victoria, Australia.

Bethell: Kenneth Charles Beswicke, Melbourne, Victoria, Australia.

Clark: Phillip Leonard, Parramatta, N.S.W., Australia.

Cooper: Keith, Wellington, New Zealand.

Croft: Leslie Thomas, B.Arch. (L'pool), A.M.T.P.I., Durban, S. Africa.

Edgcumbe: John, B.Arch. (Rand), Pietermaritzburg, Natal, S. Africa.

Fox: Revel Albert Ellis, B.Arch. (C.T.), Gwelo, Southern Rhodesia.

Gandhe: Jagannath Vithal, Ranchi (Bihar), India.

Hardie: Robert, Singapore.

Honey: Charles Raymond, Kuala Lumpur, Federation of Malaya.

Hunt: Ian Reginald, Dip.Arch. (Melbourne), Caulfield, Victoria, Australia.

Irani: Jamshed Bomanji, Bombay, India.

Izumi: Kiyoshi, B.Arch. (Manitoba), Cambridge, Mass., U.S.A.

Jarvis: Osmond Raymond, Sydney, N.S.W., Australia.

Kamath: Shankernarain Ganpath, Bombay, India.

Key: Peter John Campbell, B.Arch. (C.T.), Cape Town, S. Africa.

Keys: Peter Cecil, Granville, N.S.W., Australia.

Lee: Arthur Langham Dale, B.Arch. (C.T.), Cape Town, S. Africa.

Macdonald: Thomas, D.A. (Edin.), Ottawa, Canada.

Marston: Harry John, B.Arch. (C.T.), East London, S. Africa.

Mercer: John Graeme Beauchamp, B.Arch. (C.T.), Gwelo, Southern Rhodesia.

Moir: Heather McDonald (Mrs.), Canberra, A.C.T., Australia.

Moir: Malcolm Johnson, B.Arch. (Sydney), Canberra, A.C.T., Australia.

Muller: Derek Alexander, B.Arch. (C.T.), Hout Bay, Cape Province, S. Africa.

Nicholas: Angela Phoebe Anastasia (Miss), B.Arch. (L'pool), Port Harcourt, Nigeria.

Pradhan: Prabhakar Shivram, Bombay, India.

Reyburn: Hugh Faulds, B.Arch. (C.T.), Cape Town, S. Africa.

Robson: Gordon Kevin, Belmore, N.S.W., Australia.

Rudder: Roy Dyson, Sydney, N.S.W., Australia.

Solanki: Shantilal Ramji, Jamnagar (Saurashtra), India.

Venkataramanan: Gurunath Reddi, Madras. India.

ELECTION: 1 MAY 1951

An election of candidates for membership will take place on 1 May 1951. The names and addresses of the candidates with the names of their proposers, found by the Council to be eligible and qualified in accordance with the Charter and Bye-laws, are herewith published for the information of members. Notice of any objection or any other communication respecting them must be sent to the Secretary, R.I.B.A., not later than Monday 2 April 1951.

The names following the applicant's address are those of his proposers.

AS FELLOWS (17)

Barnes: John W. H. [*A* 1932], County Architect, County Architect's Dept., Kesteven County Council, County Offices, Sleaford, Lincs; 48 London Road, Sleaford. J. H. Haughan, E. M. Parkes, C. B. Metcalfe.

Craske: Clifford Wigg, M.M. [*A* 1920], Town Hall, Greenwich, S.E.10; 60 Sidcup Road, Lee, S.E.12. F. M. Harvey, M. H. Forward, P. B. Dannatt.

Doe: Harold Edmund [*A* 1934], 4 Market Hill, Huntingdon; 33 Market Place, St. Neots; 'Treetops', Hartford, Huntingdon. W. A. Lea, T. H. Longstaff, E. P. Archer.

Hall: Lieut.-Col. David Polson [*A* 1932], Northern Regional Hospital Board (Scotland), Raigmore, Inverness; Easter Caskieben, Mossside, Nairn. W. J. Taylor, Alexander Cullen, J. A. Ross.

Overnell: Harold [*A* 1927], Architect's Dept., Messrs. Charrington and Co. Ltd., Anchor Brewery, Mile End, E.1; The Croft, Oxenden Wood Road, Chelsfield, Kent. S. C. Clark, W. H. Hobday, C. W. Box.

Ripley: Stanley, Dipl.Arch. (Leeds) [*A* 1933], 37 Wellington Square, Hastings, Sussex; 5 Lyndhurst Avenue, Hastings. J. V. Quarmby, Edgar Bunce, C. F. Callow.

Sykes: Charles [*A* 1932], 35 Oakwood Avenue, Purley, Surrey. L. T. Moore, C. J. Epril, A. F. Hooper.

And the following Licentiates who have passed the qualifying Examination:

Colbourn: George Brownrigg, D.F.C., Messrs. Victor Kerr and Colbourn, 7 Bedford Row, W.C.1; 'Maldon', The Meadows, Chelsfield, Kent. H. V. Kerr, D. L. Solomon, Frederick Gibberd.

McIntosh: Charles Wilkie, Column House, London Road, Shrewsbury; Stranmore, Shelton Road, Shrewsbury. A. G. Chant, Herbert Jackson, Reginald Edmonds.

Pickavance: James Austin, City Architect's Dept., Stoke-on-Trent; 58 Thistley Hough, Penkhull, Stoke-on-Trent. J. R. Piggott, E. T. Watkin, Clifton Edwards.

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Rainger: Richard Charles [Final], Eden End, Charlton Kings, Cheltenham. G. D. G. Hake, W. J. Rogers, Thomas Overbury.

Rice: Elizabeth Weston (Mrs.) [Final], 62 The Woodlands, Esher, Surrey. E. M. Rice, C. G. Stillman, F. G. Goodin.

Riley: Eric Hotham [Final], c/o 35 Huntley Drive, Chanterlands Avenue, Hull. Edgar Farrar, J. Konrad, Allanson Hick.

Robertson: Richard Gibson [Special Final], The White House, Holeyn Hall Road, North Wylam, Northumberland. Prof. W. B. Edwards, F. A. Child, J. H. Napper.

Robinson: Brian Harrison, Dip.Arch. (Manchester) (Victoria Univ., Manchester: Sch. of Arch.), 15 Park Road, Blackpool. Prof. R. A. Cordingley, G. N. Hill, G. S. Pester.

Ruddle: John Joseph Patrick [Special Final], 65 Maxwell Road, Rathgar, Dublin. Vincent Kelly, Raymond McGrath, Prof. J. V. Downes.

Rushworth: John Nutter [Final], 1 Varley Street, Colne, Lancs. U. A. Coates, W. H. Harrison, Gordon Stirrup.

Rycroft: Peter Gerard [Special Final], 5 Woodcote Close, Kingston, Surrey. C. G. Stillman, H. W. Burchett, R. T. Grummant.

Samson: David Ralph [Special Final], 26 Belmont Street, Glasgow, W.2. T. J. Beveridge, Prof. W. J. Smith, T. S. Cordiner.

Saunders: Bertie John [Special Final], 17 Colyers Lane, Northumberland Heath, Erith, Kent. C. H. James, Howard Robertson, C. L. Gill.

Selman: Anthony, Dip.Arch. (The Polytechnic) (The Poly., Regent Street, London: Sch. of Arch.), 37 Bracken Avenue, Balham, S.W.12. J. S. Walkden, David Jenkin, W. W. Fisk.

Shields: Percival Herbert Arthur [Special Final], 69 Bentleys, Shooters Hill, S.E.18. D. T. Wallis, J. W. Macgregor, Thomas Wallis.

Shipley: William Ivor (Arch. Assoc. (London): Sch. of Arch.), 7 Striven Gardens, Glasgow. R. F. Jordan, Arthur Korn, H. G. Goddard.

Shortman: John Keith [Final], 29 Alexandra Park, Redland, Bristol, 6. G. D. G. Hake, T. H. B. Burrough, J. R. Edwards.

Simpson: Charles Henry [Special Final], 51 The Chase, Clapham Common, S.W.4. E. B. Musman, Sidney Loweth, H. D. Sugden.

Smith: Alistair Gregory (Sch. of Tech. Art and Commerce, Oxford: Sch. of Arch.), 73 Peel Street, Kensington, W.8. E. M. Rice, George Fairweather, Clifford Culpin.

Southwood: Robert Charles [Special Final], 5 Austen Avenue, Nottingham. J. A. West, F. H. Crossley, E. H. Ashburner.

Spencer: John Vernon [Final], 427 Stockport Road, Denton, Manchester. Cecil Stewart, A. Douglas Jones, L. C. Howitt.

Stevenson: Eric Jenour, Dip.Arch. (The Polytechnic) (The Poly., Regent Street, London: Sch. of Arch.), 38 Madeley Road, Ealing, W.5. J. S. Walkden, David Jenkin, Colin Lucas.

Stewart: Walter, Dip.Arch. (Dunelm) (King's College (Univ. of Durham), Newcastle-upon-Tyne, Sch. of Arch.), 4 Benton Close, Benton Lodge, Newcastle-upon-Tyne, 7. Prof. W. B. Edwards, R. N. Mackellar, J. H. Napper.

Stow: Derek Acton [Final], Beausite, 16 Chadacre Road, Ewell, Surrey. S. A. Hurden, John Holman, H. F. Hoar.

Sturgeon: Josiah John [Special Final], 190 Browning Road, Manor Park, E.12. E. H. Banks, Z. Sirotkin, P. M. Andrews.

Tanner: Ivor John, D.F.C. [Final], 22 Duchess Road, Clifton, Bristol, 8. G. D. G. Hake, T. H. B. Burrough, E. H. Button.

Tarling: Charles [Special Final], 102 Crofton Road, Orpington, Kent. Dr. Charles Holden, L. G. Pearson, Harold Cherry.

Templeton: Robert [Special Final], 'Fullarton', Stewarton, Ayrshire. Gabriel Steel, William McCrea, Alexander Wright.

Thompson: Kenneth John [Special Final], 6 Carisbrooke Avenue, Cottingham, Hull, E. Yorks. G. D. Harbron, F. J. Horth, R. J. Clark.

Thorne: Harold Leonard [Special Final], 12 Spenser Road, Aylesbury, Bucks. F. A. C. Maunder, W. T. Higgins, W. D. Hartley.

Thurston: Ronald [Final], 2 Downside, Dunstable, Beds. Winston Walker, Peter Dunham, W. R. Steel.

Tietjen: Edward Horace [Special Final], 96 Woodford Avenue, Ilford, Essex. D. L. Solomon, M. N. Castello, P. V. Burnett.

Topping: James [Special Final], 146 Ribbleton Avenue, Preston, Lancs. John Watt, Halstead Best, C. H. MacKeith.

Trevallion: Bernard Arthur Walter [Final], 7 Westbourne Terrace, Hyde Park, W.2. G. D. G. Hake, T. H. B. Burrough, E. H. Button.

Tritton: William Hayward [Final], Chaucer Cottage, Pilgrims Way, Canterbury, Kent. Applying for nomination by the Council under Bye-law 3 (*d*).

Utting: Russell Dudley [Special Final], Westminster Bank Chambers, 91 High Street, Winchester, Hants. A. L. Roberts, H. S. Sawyer, Colonel R. F. Gutteridge.

Vale: David Reginald [Final], 4 Vicars Court, Lincoln. P. F. Burridge, R. E. M. Coombes, S. P. Dales.

Vallis: Mary Patricia (Mrs.), (Northern Poly. (London): Dept. of Arch.), 329 Norwood Road, Herne Hill, S.E.24. T. E. Scott, S. F. Burley, Sidney Loweth.

Vane: Derek Charles William [Final], 6 Hasborough Road, Folkestone, Kent. Applying for nomination by the Council under Bye-law 3 (*d*).

Waddington: Basil Andrews [Special Final], 5A The Goffs, Eastbourne, Sussex. Samuel Taylor, L. G. Hannaford, C. J. Tomkins.

Walker: Howard Vincent [Final], Moorfield House, Moorfields, Willaston, nr. Nantwich, Cheshire. E. T. Watkin, G. Hollins, W. B. Oldacre.

Waller: Ernest Edward [Special Final], 36 Lincoln Road, East Finchley, N.2. M. H. Forward, H. W. Parnacott, T. E. Scott.

Ward: Sheila Mary (Miss) [Final], 'The Lodge', Somerset Road, Wimbledon, S.W.19. Paul Nightingale, E. M. Rice, Dr. J. L. Martin.

Watkinson: Peter William, Dipl.Arch. (Leeds) (Leeds Sch. of Arch.), Glenville, 10 Boston Avenue, Kirkstall, Leeds, 5. D. A. Fowler, Hubert Bennett, Basil Spence.

Way: Anthony Hilton [Final], Flat 2, 29 Park Crescent, Brighton, 7, Sussex. K. E. Black, S. H. J. Roth, A. J. McLean.

Welsh: Charles Gibson [Final], 38 Dunglass Avenue, Scotstoun, Glasgow, W.4. William McCrea, J. A. Coia, Alexander Wright.

Westrope: Frederick Henry [Final], 17 Wembley Avenue, Penwortham, Preston, Lancs. Thomas Duffy, F. N. Pinder, A. T. Nicholson.

White-Gaze: Peter William [Final], 41 Hertford Street, W.1. James Macgregor, W. P. Dyson, Peter Bicknell.

Wield: Douglas [Final], 68 West Street, Havant, Hants. A. C. Townsend, F. R. Steele, S. H. J. Roth.

Wightman: Harold [Special Final], 17 Unthank Road, Norwich, Norfolk. C. F. W. Haseldine, L. G. Hannaford, C. J. Tomkins.

Williams: Geoffrey Gould [Final], 'The Barne', Oaks Lane, The Oaks, nr. Bolton. R. H. Crook, A. Douglas Jones, D. Wynne-Thomas.

Williams: Glyn Arfon [Final], 32 Glynrhondda Street, Cathays, Cardiff. Lewis John, Harry Teather, C. F. Jones.

Williams: Roger Edison (Northern Poly. (London): Dept. of Arch.), 177 Rochester Way, Kidbrooke, S.E.3. T. E. Scott, Maxwell Ayrton, Courtenay Theobald.

Wills: Francis Braim [Special Final], Ashwood House, 89 Arthur Street, Derby. E. U. Channon, F. H. Crossley, T. W. East.

Wilson: Peter Geoffrey [Final], 'Silverthorne', Dunswell, nr. Hull, E. Yorks. Edgar Farrar, J. Konrad, G. D. Harbron.

Wilson: Robert Arthur [Special Final], 'Hayes', Worlds End Lane, Weston Turville, Aylesbury, Bucks. R. C. White, L. S. Stanley, Frederick Taylor.

Wolstenhulme: Peter Robert (Sch. of Tech. Art and Commerce, Oxford: Sch. of Arch.), 3 Tudor Street, Gloucester. S. E. Urwin, David Beecher, A. B. West.

Woodhead: Alan, Dipl.Arch. (Leeds) (Leeds Sch. of Arch.), 95 Wood View Avenue, Three Lane Ends, Castleford, Yorks. W. A. Eden, Hubert Bennett, Spencer Silcock.

Woolley: Leonard John Buckley [Special Final], 'Cherry Tree House', 60 Rawcliffe Lane, Clifton, York. Applying for nomination by the Council under Bye-law 3 (*d*).

Wye: Donald Geoffrey, Dip. Arch. (The Polytechnic) (The Poly:, Regent Street, London: Sch. of Arch.), 64 Aldin Avenue, Slough, Bucks. J. S. Walkden, Frederick Gibberd, E. Banks.

Yandell: Thomas Jeffrey [Final], 72 Gordon Road, St. George, Bristol, 5. Eric Ross, G. D. G. Hake, T. H. B. Burrough.

Young: Laurence Murray [Final], 34 Chilham Road, Gillingham, Kent. C. M. Swannell, R. C. Foster, Frankland Dark.

LICENTIATES (7)

Brooks: Kenneth George, c/o Messrs. Pink and Arnold, Westgate Chambers, Winchester; 'Trevean', 131 Greenhill Road, Winchester. A. L. Roberts and the President and Hon. Secretary of the Hampshire and Isle of Wight A.A. under Bye-law 3 (*a*).

Brooks: William Arthur, 3 The Quadrant, Coventry; 61 Billing Road, Coventry. Rolf Hellberg, A. H. Gardner, W. S. Hattrell.

Davies: John Francis, War Damage Commission, Liverpool; 25 Ashton Road, Hillside, Southport. Rupert Medcalf, Leonard Rigby, A. F. Hope.

Hickman: James Bernard, 1 Market Street, Wellington, Shropshire; 44 Herbert Avenue, Wellington. J. B. Cooper, S. T. Walker, G. B. Cox.

Johnston: James, Ministry of Works, Cleland House, Page Street, S.W.1; 54 Lime Grove, New Malden, Surrey. T. R. Eltringham, W. A. Rutter, C. G. Mant.

Laycock: Rev. Canon Edward Penard, B.E.M., A.K.C., 51 Yew Tree Road, Southborough, Kent. J. L. Fouracre, A. D. Robinson, A. F. Hooper.

Thompson: Mabel (Miss), c/o Borough Architect's Dept., 28 The Square, Stockton-on-Tees; Alpha House, Nunthorpe, Middlesbrough. P. F. Burridge, F. A. Child, G. P. Stainsby.

ELECTION: 19 JUNE 1951

An election of candidates for membership will take place on 19 June 1951. The names and addresses of the overseas candidates, with the names of their proposers, are herewith published for the information of members. Notice of any objection or any other communication respecting them must be sent to the Secretary, R.I.B.A., not later than Saturday 16 June 1951.

The names following the applicant's address are those of his proposers.

AS FELLOWS (4)

Cuthbertson: Dale [*A* 1931], Government Architect, Public Works Dept., Singapore; 1 Goodwood Hill, Singapore. F. W. Brewer, W. S. Corlett, D. C. Rae.

Hall: George Albert Victor, Messrs. Way and Hall, Kayamally Building, Hong Kong. G. W. Grey, H. J. Tebbutt, Prof. L. B. Budden.

Knight: Professor Cyril Roy, M.A., B.Arch. (Liverpool) [*A* 1924], School of Architecture, Auckland University College, Auckland, New Zealand. Prof. L. B. Budden, Prof. Stephen Welsh, Prof. W. B. Edwards.

Stout: George Russell [*A* 1937], Public Works Dept., Lagos, Nigeria, West Africa; Laurel Bank, Whitehaven, Cumberland, England. F. C. Haslam, Prof. L. B. Budden, F. X. Velarde.

AS ASSOCIATES (21)

The name of a school or schools after a candidate's name indicates the passing of a recognized course.

Bertinshaw: James Welbourne (Passed a qualifying Exam. approved by the N.Z.I.A.), Ocean Parade, Pukerua Bay, Wellington, New Zealand. W. G. Young, and the President and Hon. Secretary of the N.Z.I.A. under Bye-law 3 (*a*).

Black: Angus Ross (Passed a qualifying Exam. approved by the N.Z.I.A.), c/o Messrs. McAllum and Black, Savoy Building, Moray Place, Dunedin, C.1, New Zealand. J. H. White and the President and Hon. Secretary of the N.Z.I.A. under Bye-law 3 (*a*).

Bloomfield: Ralph l'Anson (Passed a qualifying Exam. approved by the R.A.I.A.), 2 Service Avenue, Ashfield, N.S.W., Australia. D. K. Turner, Prof. H. I. Ashworth, B. J. Waterhouse.

Brownlow: James Gordon (Passed a qualifying Exam. approved by the R.A.I.A.), 'Aloomba', Narrabri, Australia. Prof. H. I. Ashworth, Prof. A. S. Hook, Prof. Leslie Wilkinson.

Campbell: John Douglas (Passed a qualifying Exam. approved by the R.A.I.A.), Daly Street, Darwin, N.T., Australia. B. B. Lewis, Mrs. Hilary Lewis, R. K. Stevenson.

Earle: James Heward (Passed a qualifying Exam. approved by the R.A.I.A.), 1742 Malvern Road, Glen Iris, S.E.6, Victoria, Australia. J. F. D. Scarborough, B. B. Lewis, Mrs. Hilary Lewis.

Graff: Elias, B.Arch. (Rand) (Passed a qualifying Exam. approved by the I.S.A.A.), 11 Ridge Road, Mountain View, Johannesburg, S. Africa. J. A. Hoogterp, A. S. Furner, and applying for nomination by the Council under Bye-law 3 (*d*).

Gummer: John Batley (Passed a qualifying Exam. approved by the N.Z.I.A.), c/o Messrs. Gummer and Ford and Partners, 721-724 N.Z. Insurance Building, Queen Street, Auckland, New Zealand. Prof. A. C. Light, C. R. Ford, M. K. Draffin.

Lambert: Jack Lawrence (Passed a qualifying Exam. approved by the R.A.I.A.), P.O. Box 58, Lindi, Southern Province, Tanganyika Territory. R. S. Cobb, H. D. Archer, R. Q. Scammell.

Laurenson: Graeme (Passed a qualifying Exam. approved by the N.Z.I.A.), 14 Disraeli Street, Hawera, Taranaki, New Zealand. W. G. Young and the President and Hon. Secretary of the New Zealand Institute of Architects under Bye-law 3 (*a*).

Lorraine: Hans John (Passed a qualifying Exam. approved by the R.A.I.A.), Guest Road, Oakleigh South, S.E.13, Victoria, Australia. B. B. Lewis, P. H. Meldrum, Mrs. Hilary Lewis.

McAllum: Ian Robert (Passed a qualifying Exam. approved by the N.Z.I.A.), c/o Messrs. McAllum and Black, Savoy Building, Moray Place, Dunedin, C.1, New Zealand. J. H. White, and the President and Hon. Secretary of the N.Z.I.A. under Bye-law 3 (*a*).

McDougall: John (Passed a qualifying Exam. approved by the R.A.I.A.), 5 Sizer Street,

Lower Mitcham, South Australia. L. Laybourne-Smith, G. St. J. Makin, J. D. Cheesman.

Oser: Hans Peter (Passed a qualifying Exam. approved by the R.A.I.A.), Scot Chambers, Hosking Place, Sydney, Australia. W. R. Richardson, Prof. A. S. Hook, K. H. McConnel.

Perl: Marcus Aaron, B.Arch. (C.T.) (Passed a qualifying Exam. approved by the I.S.A.A.), 21 Buckingham Road, Port Elizabeth, S. Africa. Dr. D. R. Harper, O. Pryce Lewis, Prof. L. W. T. White.

Sprague: Ian B. (Passed a qualifying Exam. approved by the R.A.I.A.), 'Dungowan', Barwon Heads, Victoria, Australia. B. B. Lewis, O. A. Yuncken, Mrs. Hilary Lewis.

Srinivasan: Ramnaravan [Final], Mangala Bhavan, 1 New Boag Road, Madras, 17, India. Applying for nomination by the Council under Bye-law 3 (*d*).

Standing: Stanley Owen [Special Final], 116 Wells Street, Seven Dials, Toronto, Ontario, Canada. K. E. Black, J. L. Denman, H. L. Allward.

Vermeulen: Frederik Hendrik, B.Arch. (Rand) (Passed a qualifying Exam. approved by the I.S.A.A.), 110 Cumberland Road, Kensington, Johannesburg, S. Africa. K. E. F. Gardiner, D. M. Sinclair, and applying for nomination by the Council under Bye-law 3 (*d*).

Wedding: Adrian Philip (Passed a qualifying Exam. approved by the N.Z.I.A.), 10 Raumati Street, Remuera, Auckland, S.E.2, New Zealand. C. R. Ford, W. H. Gummer, H. L. Massey.

Wong: Ting-Tsai, B.Sc. (Hong Kong) [Special Final], 4 Lower Castle Road, Hong Kong. C. W. Box, Trenwith Wills, T. J. Rushton

AS LICENTIATE (1)

Fellows: Benjamin Herbert, c/o Messrs. Blackburne, Norburn and Partners (*F/F/L*), P.O. Box 695, Dar-es-Salaam, Tanganyika. S. L. Blackburne and the President and Secretary of the East Africa Institute of Architects under Bye-law 3 (*a*).

Members' Column

This column is reserved for notices of changes of address, partnership and partnerships vacant, or wanted, practices for sale or wanted, office accommodation, and personal notices other than of posts wanted as salaried assistants for which the Institute's Employment Register is maintained.

APPOINTMENTS

Mr. J. Holt, A.M.T.P.I. [*F*], has taken up the appointment of Architect to the South Eastern Regional Hospital Board (Scotland). His address is 6 Cambridge Street, Edinburgh, 1.

Mr. B. H. Dowland, A.M.T.P.I. [*A*], formerly Regional Architect to the Ministry of Health at Leeds, has been appointed Assistant Architect to the Church Commissioners, 1 Millbank, London, S.W.1.

Mr. A. G. Jury [*F*] who at present is Director of Housing for the City of Glasgow, has been appointed as the first City Architect and Planning Officer of that city.

Mr. Leslie G. Mayman [*A*] has resigned his appointment as Architect to the Halternprice Urban District Council upon being appointed Housing Architect to the Ministry of Health and Local Government, Northern Ireland. He commenced duty on 1 March. His address is Ministry of Health and Local Government, Stormont, Belfast.

PRACTICES AND PARTNERSHIPS

Messrs. Fry, Drew and Partners announce that **Mr. Maxwell Fry** [*F*] and **Miss Jane Drew** [*F*] have, with M. Pierre Jeanneret, been appointed joint architects for the building of the new capital city of the Punjab for the Government of the Punjab, India. M. le Corbusier is appointed consultant to the Punjab Government for the scheme. Mr. Maxwell Fry is leaving for India at once, and Miss Drew will remain in the United Kingdom for the present to deal with outstanding work of the practice in England and West Africa. At a date to be announced later, the firms of Messrs. Drake and Lasdun of 29 Sackville Street, W.1, and Messrs. Fry, Drew and Partners will be joined under the title of **Fry, Drew, Drake, Lasdun and Partners,** to carry out the joint practices from 63 Gloucester Place, London, W.1.

Mr. John Hiner [*A*] has opened an office at 40 Duke Street, Chelmsford, Essex (Chelmsford 3712) and would be pleased to receive trade catalogues etc.

Mr. Sydney H. Jones [*L*] and **Mr. J. Arnold Parker,** of 18 Warwick Row, Coventry, have opened a branch office at 648 Warwick Road, Solihull, Warwickshire, and would be pleased to receive trade catalogues etc. at both addresses.

Mr. K. D. Edwards [*A*] (Edwards and Branson) and **Mr. A. Drew Edwards** [*A*] have amalgamated their practices as from 1 January 1951 and will practise under the style of **Edwards, Branson and Edwards.**

Mr. Denis Harper, Ph.D., A.M.T.P.I. [*F*] and **Mr. J. P. Thompson,** A.M.I.C.E., have become Associates in the firm of **Norman and Dawbarn** (Mr. Graham Dawbarn, C.B.E. [*F*], Mr. R. F. Lloyd Jones, M.I.C.E., and Mr. Frank Rutter [*L*]).

Mr. R. Forbes Hutchison [*A*] has resigned his appointment as Chief Architect to the South-Eastern Regional Hospital Board, Scotland. He has acquired the practice of the late Mr. Walter Alison [*A*] and the firm will continue under the style of **Walter Alison and Hutchison** at 38 York Place, Edinburgh 1, and 27 Kirk Wynd, Kirkcaldy, Fife. He would be pleased to receive trade catalogues etc.

Messrs. Mence and Moore (Mr. S. R. Mence [*A*] and Mr. A. Dadley-Moore [*L*] of Port-of-Spain, Trinidad, announce that as from November 1950 their association with Mr. Bruce Moulder in Barbados was mutually discontinued.

CHANGES OF NAME AND ADDRESS

The title of the firm of Fisk, Burley and Fisk (Mr. Walter W. Fisk [*F*] and Mr. Sidney H. Fisk) has been changed to **Walter W. Fisk** and **Sidney H. Fisk.** They will continue to practise from 24 Buckingham Street, Adelphi, London, W.C.2. The telephone number is now TRAfalgar 1537-8.

Mr. D. Bailey [*A*] has removed to 47 Dalkeith Grove, Stanmore, Middlesex, where he will be pleased to receive trade catalogues etc.

The new address of **Mr. C. H. Every,** A.M.T.P.I. [*A*] is c/o Chief Engineer's Department, P.O. Box 1, Vanderbijl Park, Transvaal, South Africa.

Mr. F. Evan Jones [*A*] has moved his London office to 24 Buckingham Street, Strand, W.C.2.

The temporary American address of **Professor R. Frankel** [*F*] is Department of Architecture, School of Fine Arts, Miami University, Oxford, Ohio.

The new address of **Mr. K. Standish King** [*A*] is Messrs. Cobb, Archer, Scammell and King, Freed Buildings, Mombasa.

Mr. Cyril Adler [*A*] has removed from 31 King's Road, Chelsea, S.W.3 to 11 King's Road, Chelsea, S.W.3. (SLOane 9160.)

The Belfast Housing Architect's Department has removed to 94 Chichester Street, Belfast, and the address of **Mr. J. W. Adamson,** A.M.T.P.I. [*A*], the Housing Architect, is also as above.

The new address of **Mr. L. N. Tiwari** [*A*] is Senior Architect to the Government of United Province, 15 Mall Avenue, Lucknow, U.P., India.

Mr. James F. McLean [*A*] has removed to 'Audavi', Redmore Close, Bitterne, Southampton.

Mr. Louis R. Volonterio [*A*] who formerly practised at 15 Wimborne Road, Bournemouth, has removed to 49 Cavendish Road, Bournemouth (Bournemouth 4931) and would be pleased to receive trade catalogues etc.

Mr. Richard Henniker [*F*], who has been practising temporarily from 14A Berkeley Mews, Seymour Street, Portman Square, London, W.1, has now taken permanent premises at 14 Berkeley Mews. The telephone number (WELbeck 0405) remains unchanged. He will be pleased to receive trade catalogues etc.

PRACTICES AND PARTNERSHIPS WANTED AND AVAILABLE

Associate (34) with varied experience of general practice seeks partnership or position leading thereto in London or the Southern Counties. Box 18, c/o Secretary R.I.B.A.

Associate (36) with varied experience, seeks partnership or senior position leading thereto in North Lancashire area. Box 19, c/o Secretary R.I.B.A.

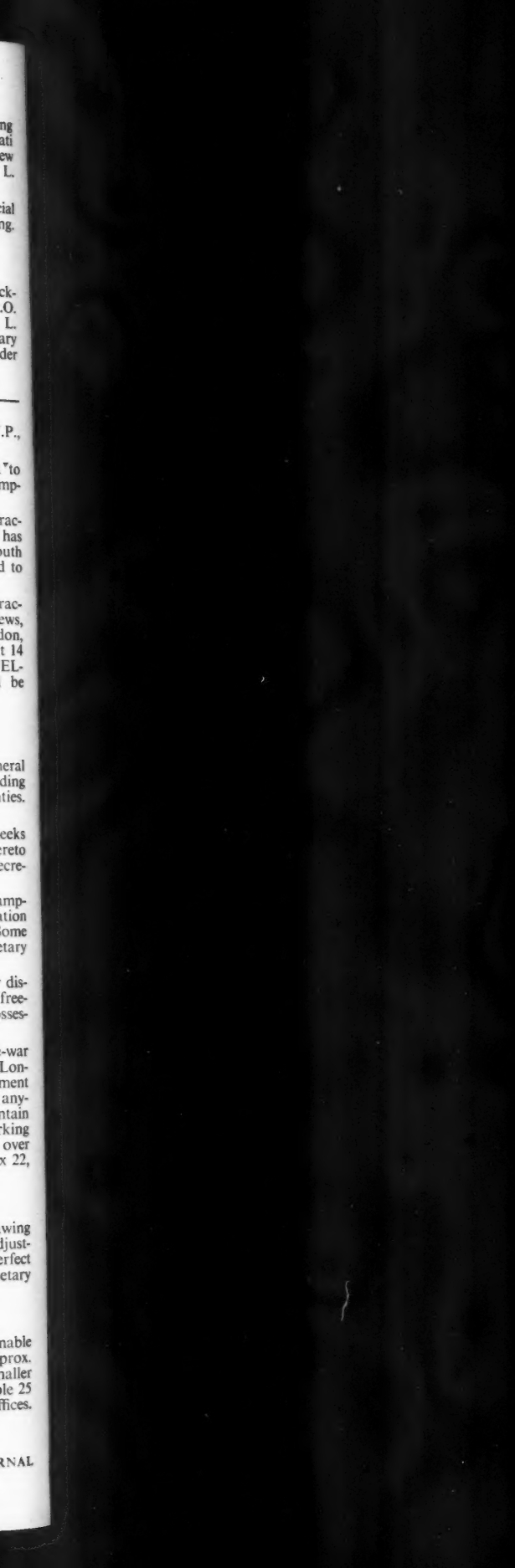
Fellow with general country practice in Hampshire offers partnership subject to confirmation after 12 months' probationary period. Some capital necessary. Box 20, c/o Secretary R.I.B.A.

Practice with consistently high income for disposal in West Country town, together with freehold of a six-storey office building—part possession. Box 21, c/o Secretary R.I.B.A.

Member (also member R.I.C.S.) with pre-war established sound commercial practice in London, S.W.1, is prepared to discuss arrangement with member approaching retirement, or anyone for other reasons not wishing to maintain office organization, with view to working arrangement whereby office work is taken over and identity and supervising retained. Box 22, c/o Secretary R.I.B.A.

FOR SALE

For sale. Large, counterbalanced drawing board, size 4 ft. 1 in. by 6 ft. 7 in. Fully adjustable, complete with all accessories. Perfect working order—offers. Box 23, c/o Secretary R.I.B.A.

ACCOMMODATION

To let, in Russell Square area, at reasonable rent, two basement offices measuring approx. 16 ft. by 13 ft. and 12 ft. by 11 ft. (the smaller with annex approx. 8 ft. by 6 ft.), available 25 March 1951. At present used as drawing offices. Box 24 c/o Secretary R.I.B.A.